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Addresses to Medical Students.*

I.

LOOKING BACK AND LOOKING FORWARD.

An Address delivered to the Students of St. George's Hospital at the Opening of the Winter Session, Oct. 1st, 1924,

BY SIR ISAMBARD OWEN, D.C.L., M.D., F.R.C.P.,
CONSULTING PHYSICIAN TO THE HOSPITAL; LATE DEPUTY-CHANCELLOR, UNIVERSITY OF WALES; VICE-CHANCELLOR, UNIVERSITY OF BRISTOL.

CIRCUMSTANCES led me at one time to study a rather out-of-the-way chapter of human history: that of the origin and development of Universities in Europe. One of the impressions it left on my mind was that the reputation and success of an academic institution is largely proportional to the degree in which it succeeds in creating a sense of corporate existence among its members, and a corresponding corporate pride; such sentiments implying not only a feeling of fraternity among them, but a sense of their common interest in the credit and reputation of the community as a whole. Where such sentiments prevail—I leave it to psychologists to say why—the effective value of the individual seems to be perceptibly enhanced, to the benefit of himself, of the institution, and of the world at large. There is nothing new in all this. It has long been recognised as the basis on which our much-envied public school system rests.

I was one of those who regretted that so little attention was given to this subject when the reconstruction of the University of London was undertaken in the close of the last century. It was, in fact, the key-note of the counter-scheme that Sir James Kingston Fowler and I put forward at that time. But pray do not imagine that I am about to venture into any University of London questions; I have been wholly innocent of them for many a long day; I would merely express a hope that if any further reconstruction of the University is ever contemplated, the point I have mentioned will not again be overlooked.

[The speaker then made a feeling allusion to the death of Sir Sydney Russell-Wells.]

The atmosphere of London is certainly not one unfavourable to the growth of academic corporate feeling. Quite the contrary, I should say, when opportunity is offered it. I have been brought into contact in my time with many educational institutions in many places, and am free to say that I have never met with a more genuine corporate sense or a stronger corporate pride than among our own particular community of St. George's men. To an old-time St. George's man revisiting his hospital the place cannot but seem strangely familiar at first sight. It is only when he begins to look into details that he will realise what a wholesale change time has made in nearly every appliance which the hospital offers for the comfort and welfare of the sick, the instruction of the student, and the advance of medical science. And one may say much the same of the whole field of medicine and surgery cultivated within its walls. In superficial aspects and habits the physician or surgeon of to-day does not materially differ from his predecessor, but in every detail of his actual work the changes of the last half century have been revolutionary, and not the least of these have come about during the 20 years since I myself quitted medical practice.

MEDICINE A GENERATION AGO.

When I first entered on medical study the teaching of Lister was only just beginning to be followed in England, and at least 95 per cent. of modern surgery was yet unborn. Ovariotomy was a strictly tabooed subject, cerebral surgery undreamed of, and the story of the candidate who suggested removal of a damaged kidney as a possible expedient passed from hand to hand among us as a supreme professional joke. Preventive medicine, too, was in its earliest infancy, pathology still dealt with dead material alone, and no human eye had yet seen a pathological bacillus. The methods of medical education have undergone no less radical changes. It is strange now to reflect that I was a member of the first microscopical class ever held in the University of Cambridge, at any rate in connexion with medical studies. In those days the schools of the London hospitals, which were a gradual development from a system of personal apprenticeship, had only recently completed their organisation by absorbing or replacing the private schools of anatomy and of chemistry that had previously worked in connexion with them. In these later days St. George's has made itself the pioneer of a still further advance in the organisation of medical education, in deciding to relinquish the teaching of the preliminary sciences to the University of London, to which it properly belongs, and to confine itself to its legitimate fields of pathology, public health, and clinical medicine and surgery. The change was made, I fear, at some sacrifice of immediate interests; but it was a step in the right direction, taken in accordance with the accepted academic policy of the time, and sooner or later the example will tell elsewhere.

The term "clinical," in medicine as well as in surgery, conveys a somewhat different implication to-day from that which it did a generation ago. To a man who, like myself, has been little engaged in medicine the last 20 years, nothing is more striking than the degree to which laboratory methods and laboratory science have now come to supplement, or even to supplant, older methods of clinical investigation, whether for purposes of research or in the daily work of diagnosis. Many a clinical problem of a kind which in older days we used long and anxiously to puzzle over at the bedside is now settled promptly and decisively by a reference to the laboratory, and the laboratory has become as essential an appendage to a clinique as a dispensary.

Meanwhile it may be well to recall that the work of the laboratory is not the only aspect of the search after truth to which the inspiring name of "Science" applies; and to remember that clinical observations in the older sense of the term, provided that they are accurately made, and conclusions drawn from them, if logically drawn, are every whit as "scientific" as the work of the chemist and the physiologist, demanding to the full as great powers of mind successfully to deal with them. There may still remain a great part in the advancement of medical science for the older methods of investigation to play.

THERAPEUTIC SCIENCE.

This is certainly the case with one branch of medical research which has somewhat lagged behind the rest, and towards which in the nature of things the laboratory can contribute only incidental aid; I mean therapeutics. I am not seeking to question the value of the light that pharmacology has thrown on the mode of action of remedies, or ignoring the many recent discoveries of new and promising medicinal agents; but behind all this there still seems (if I may venture to say so) to be the old lack of a real science of therapeutics; of machinery for accurately determining the power, if any it have, of a reputed remedy to counteract a particular disease, or for a comparison of the value of one remedy with that of another. These might seem to the uninitiated simple determinations to make; in reality we know them to be quite the reverse. Our forefathers' therapeutic reasoning was simple enough. It rested on an unformulated but practically accepted assumption that the natural course of a malady was towards an unfavourable issue unless checked by artificial means. Granted this major premise, it logically resulted that any improvement observed in a case of illness could be confidently credited to the treatment employed at the time. A certain *vis medicatrix naturæ* was admitted in theory, but in practice ignored. This manner of regarding therapeutic questions, I need hardly say, still prevails largely among the public, and is, in fact, the basis on which the whole fabric of quackery is built. There were always some sceptics among us; one of the ablest physicians of my younger days, the late Sir William Gull, used to assert a diametrically opposite position. The natural tendency of the majority of maladies brought to a physician's notice, he urged, given due shelter, rest, and diet, was sooner or later (a rather variable later) towards recovery; and the participation of a remedy in bringing about the favourable results was at best a doubtful proposition. In an earlier generation a similar view appears to have been held, though hardly preached, by a still greater man from among ourselves—Thomas Young, the physicist.

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* With the consent of the authors all these introductory addresses are reproduced in somewhat abridged form.

Modern medicine, mindful of its grave responsibilities, does its best to steer a judicious middle course between undue scepticism on the one hand and undue credulity on the other; but the standing need, it feels, is to have such a course effectively surveyed and sounded, and definitely marked on the chart. The method of accomplishing this is in principle sufficiently simple, but on the other hand exceedingly difficult in application.

COÖRDINATED CLINICAL OBSERVATION.

It is when the practical application of the principles of therapeutic science begins that the difficulties surrounding it present themselves; for the therapeutic inquirer in all but a limited number of instances finds himself presently confronted with an indefinite series of variations in the very subject-matter of his inquiry; variations in the course, the duration, the severity, and the particular manifestations of cases, even of whole epidemics, of the same malady, to say nothing of variations in the constitution of patients and in their individual susceptibility, whether to disease or to remedy; variations so manifold as to require a widely extended field of observation to eliminate their effects, such a field as is seldom available in the practice of a single observer. A less obvious but no less real difficulty lies in the fact that clinical observation for the purpose of therapeutic inquiry is an art which in itself needs a certain special training if results of real scientific value are to be obtained. Considering all things, small wonder that so little has hitherto been accomplished in the direction I am speaking of, and that practical therapeutics in consequence is still so largely at the mercy of uncertain, conflicting, or even mutually contradictory individual views. Small wonder, too, that the establishment of a real science of therapeutics based on exact statistical methods has been so often in the past pronounced an impossibility. Is it really so?

I take heart of grace to propound the question afresh, because the three hardest-worked years of my life at St. George's were spent in an endeavour to prove the possibility of such a thing; with the result of convincing at least myself that there was no impossibility in the matter, granted three conditions—that is, a sufficiently wide field of inquiry, unity of aim and method among its cultivators, and (possibly hardest of all to obtain) adequate means to retain the services of a staff of fully trained observers, working under a single direction. With the growth of the scientific spirit another new spirit has entered the medical world—the spirit of coöperation in scientific research. In the growth of that spirit, perhaps, one may look for the future hope of therapeutic science, and anticipate that what was deemed Utopian in 1880 may, as many other things have done, become an admitted possibility of a more modern time.

II.

SOME PREVENTIVE ASPECTS OF MEDICINE.

Introductory Address on the Occasion of the Opening of the Session at the Middlesex Hospital on Oct. 1st,

BY CHARLES PORTER, M.D., B.SC.,
MEDICAL OFFICER OF HEALTH, ST. MARYLEBONE.

THE Dean, to whom I owe the invitation to act as lecturer to-day, very kindly also chose the subject upon which I was to speak. "You will," he said, "deliver a lecture on Some Aspects of Preventive Medicine," but I propose to alter his title, making it read Some Preventive Aspects of Medicine. This I do with one object only, to save the men who are just beginning the study of medicine the trouble of finding out for themselves or the pain of learning from a non-medical source that medicine is not all curative in its aim but has a preventive aspect as well, and further, they must learn and better thus early that preventive medicine as it is now coming to be understood is not exclusively a matter for specialists but for every man and woman entering upon the practice of medicine. Largely I desired to speak thus early because of a feeling I have that once you get into the wards and begin to traffic with disease, to see it and study it and the multitudinous methods adopted with a view to alleviating it, you may come to regard it as inevitable, to believe that it is absolutely true that "man is born to trouble as the sparks fly upward" and to consider the saying "Prevention is better than cure," a saying only, so far at any rate as sickness is concerned.

It is so easy to come to these conclusions; the system of medical education now in vogue almost drives the student to them. He sees so much of disease, and the various conditions are so beautifully catalogued for him that it is not to be wondered at that he comes to regard diseases and disease groups as established things and to continue to so accept them throughout his professional life. Also he sees and hears and reads so much of treatment of disease and the success that attends it that it is not surprising if, in regarding sickness and suffering, he should think immediately and exclusively of means and methods of alleviation. That he should end up by disregarding the prevention better than cure statement or entirely disbelieving it is not surprising either. Curative medicine he can see; it works; he sees it at work and he sees the results obtained. Prevention and preventive medicine: are they anything more than conceptions? If not, where are they, where do they work, what do they do, what have they done? If they have done anything why is the out-patient department always thronged, why are the wards always full, and why does the secretary-superintendent eternally dream of millionaires and hospital extensions? These are reasonable and pertinent questions—questions I should like to think the medical student occasionally asks, since to me it would be evidence that he recognised the existence of a preventive aspect to medicine and gave some thought to the question of prevention.

THE ACHIEVEMENTS OF PREVENTION.

If he has doubts, and I admit he has reason for them, I should like to explain that so young is preventive medicine that practically there has been nothing more done than a mere clearing of the ground; but in connexion with even these preliminary efforts it is possible to show results. These are in the form of reductions in the number of persons dying annually, reductions in the number of cases of some diseases, and the almost complete disappearance of others, and associated with these happenings such benefits for the people as lessened suffering, worry, and anxiety, a prolongation of life with better health, and more comfort to enjoy it with.

The story of these gains is unfortunately told in figures, and most people hate figures so much that I hesitate to mention them, but perhaps I may be forgiven for giving only a few. Let the first of these relate to the period round about 1875, when it may be taken interest in preventive medicine began to awake, since it was in this year the legislature demanded that works in relation to public health should be organised and a special preventive medical service created. On an average between 1875 or a little earlier and 1880 the annual number of deaths was 517,831, the average number of people alive being 24,255,271. This gave a death-rate of 21·4 per 1000. In 1923, the organisation having fairly well established itself and views as to the qualifications of the preventive medicine specialists having become crystallised as evidenced by the introduction of new regulations as to training and examination, the number of deaths had fallen by something like 100,000, and the death-rate to 11·6, just over half of the previous average rate. These things had happened, it may be noted, despite the fact that the population had increased by no less than 14,000,000 to 38,403,000. Why was there all this reduction ?

Something must have happened to disease ; something that may for convenience be called "prevention" must have been exerting influence on it. Amongst the infectious diseases particularly the contribution has been extraordinary. Take scarlet fever, which in the period between 1871–80 added on an average each year over 17,000, killing 7 out of every 10,000, and in 1923 less than 1000, or about 1 per 50,000. Take small-pox, which contributed 7 to the total number of deaths in 1923, as compared with an average of nearly 6000 in each of the ten years 1871–80. Typhus fever which added regularly round about 1500, scored 1 in 1923, and enteric fever, which, as I have already indicated, is getting into the group of disappearing diseases, as against an average of nearly 8000 put on only 450. Even diseases that we regard as prevalent have yielded to the efforts that have been made, lung tuberculosis—consumption—contributing yearly not over 50,000 but a rough 30,000.

In the case of other forms of consumption there is an equal, if not a greater, improvement, though, since the fall is only from 18,000 to 8000, we have not yet reached the state I have been assured exists in Boston, U.S.A., where cases of surgical tuberculosis affecting bones, joints, &c., are practically never seen in hospital practice. Though we have not yet reached that happy condition we are surely approaching it. With 10,000 fewer deaths there must be a marked reduction in the number of cases, a reduction that will become even greater as the improvement in the milk-supply, for which all interested in preventive medicine are working and hoping, is brought about. If there has been reduction in the number of cases of, as well as of deaths from, tuberculosis, and you may take it there has been and is a progressive reduction, so also there must be fewer cases of the other diseases in which there has been a falling off in the number of deaths, and if there are fewer cases there must be these other things I have claimed should be credited to preventive medicine—lessened suffering, lessened anxiety, and increased healthiness.

In the case of certain other diseases the conquest is less complete, and it is not possible to claim more perhaps than that they have been fought to the point of yielding or even only to a standstill. At the moment one of the most important in this group is diphtheria, the number of deaths from which in 1923 was 2722, only very little lower than the average for 1871–80—viz., 2943. Even in regard to this, however, some claims may be made—viz., that it is less dreadful than formerly, and is even threatened with extinction, since it is now possible by means of tests to discover whether or not an individual is liable to attack, and if he proves to be so to afford him protection by something in the nature of vaccination.

The results that have been obtained in the United States particularly, but also here and in certain continental countries, by this procedure appear to justify the belief that in it there exists a means of increasing the amount of control over this disease. In America—a land where the readiness to investigate is very marked and money to encourage it easily obtainable—investigations are now proceeding on similar lines in the case of scarlet fever. As this disease is one quite difficult to control any addition to the means of dealing with it will be very welcome.

The last fact in relation to the reduction in the number of deaths that has occurred in the years since 1875 I propose to mention is this: that it has been most marked in the earliest period of life. It is the babies who have benefited most, who have been given year by year not only an improved chance of life but a higher chance of health. Between 1871 and 1880 so small was the chance that on an average out of every 1000 born 150 died within 12 months. In 1923 the extent to which the chances had improved is shown by the fact that the rate of mortality had dropped to 69 per 1000 births. To me this falling rate of mortality amongst infants always seems the most wonderful thing ; much more wonderful than the effect produced on the diseases I have mentioned, more wonderful even than the increased expectation of life—about 20 years—given to this generation. More wonderful because it has been obtained as a result of the operation of purely preventive measures ; more wonderful and more encouraging because it shows what preventive measures can do.

THE DOCTOR AS TEACHER.

Largely the baby lives have been saved by dispelling ignorance ; by teaching the methods to be adopted in relation to the care of life and health ; by encouraging the practice of these methods, seeing they are practised and demonstrating the effects of their practice.

It is not only in regard to the care of infant life and health that there is need for dispelling ignorance. It is not only in infancy that benefit is to be derived from the appreciation of right methods. Doctoring, you must learn, does not mean merely the treating and curing of ills, and the service is not to the sick alone. The title "doctor" you hope to gain gives you the right and ability to teach. It imposes on you the duty of teaching, and you *will* teach. Indeed, you *must* teach. More and more definitely there is evidence of a demand from the people that they shall be taught. They desire to know how to safeguard their life and health. They, if not you, have studied the figures, some of which I have quoted, and have noted the decreases and the disappearance of disease and have heard the claims and promises of the preventive medicine experts and the health authorities. They accept that much suffering is avoidable and they are insisting that they shall be told how to avoid it and how to live as the Bible says they should, to three score years and ten. They believe that the medical profession knows and that the secret is imparted to medical students in medical schools.

THE PREVENTIVE ASPECT OF PANEL PRACTICE.

The law of the land, in fact, promises them prevention and provides for its application. That, at any rate, is what the National Health Insurance Acts seem to me to do, and every medical practitioner who becomes a panel doctor and accepts service under the Acts undertakes to carry out preventive as well as other duties. He is, as the chief medical officer of the Ministry of Health has said, a "missionary of health." It is extraordinary how the views with regard to the Insurance Act have changed, and how many doctors as well as patients who formerly could see no good in it are coming to regard it as a measure of definite value.

To many practitioners, it may be, its value as a preventive measure may not be apparent as yet, but they will come to recognise it. There are too many people referring to it as such ; too many people quoting statistics showing how many thousands of years of work are lost per annum and how many might be saved if the medical services provided for by the Act were properly made use of. Also, as I have already said, there are the people who are demanding that the necessity for suffering shall be removed and that the

Act shall be operated to this end. They will no doubt see that it is operated and that efforts are made in the direction of real prevention. These efforts, however, will not properly be made and real success will not be attained until they recognise further that they themselves have some responsibility in regard to prevention. It is not a matter for the doctor, the teacher alone, as they suppose. The least of the difficulties, I have said, was the finding of the teacher. The greatest difficulty is those who have to be taught. There must be the will to learn, to coöperate; the desire to accept the teaching and apply it. There must be submission to supervision, perhaps not so close as is the case in infancy, but still sufficiently close. If the two groups, the doctor and the people, will realise their responsibilities and will coöperate for prevention, prevention will follow and results perhaps not so wonderful as those that have been obtained in the case of childhood but still wonderful will be obtained.

The Study of Health.

At the moment and in my capacity as a member of the staff of the Middlesex School—a position I am immensely proud to occupy—it is with the budding doctor I am chiefly concerned.

That concern is to beg of him not to devote all his time, energy, and enthusiasm to the observation of the diseased and the study of disease. There is much to learn of the healthy and of healthiness, and it is going to be worth while learning it. An American professor of preventive medicine has recently caused a certain amount of amusement by suggesting that, well or ill, everybody should undergo a complete medical examination at regular intervals. By the age of 60, in his opinion, everybody should have been thus completely overhauled at least 75 times. The reason for the amusement is not clear to me. It is largely because I feel so certain that the benefit of regular and frequent medical inspection will soon be widely recognised, and that the medical profession will come to favour and recommend it, that I advise the turning of attention to the study of the healthy, of health and the maintenance, the treatment of health.

That the profession should recommend such examinations is not in the least unreasonable. Since the time when it became fashionable to regard the teeth as the source of the bulk of our ills we have been preaching that everybody should visit the dentist once or twice a year. The teeth are not, however, the only organs in the body that may, though there is very little evidence of the fact, be the seat of some trouble that can be readily stopped if recognised early and promptly dealt with. Some day, perhaps, the profession will think it worth while pointing this out and make the obvious recommendation; or perhaps, happy thought, the dentist may return the doctor's compliment and point out the necessity for a wider overhaul than he can give.

Medical Inspection.

A further reason that might be offered for failure to see humour in our professor's suggestion is that amongst quite a large section of the population of this country the practice of medical inspection has already been established. Of the hundreds of thousands of children attending the elementary schools quite a respectable number before they leave school must have had a considerable proportion of the 75 medical inspections due to them, having undergone examination at the child welfare centres in babyhood in addition to the three or four to which they must submit during the period of school attendance. The unfortunate thing is that these inspections cease on leaving school and that the only class of the population to receive the advantage is that privileged to attend the elementary schools. That benefits spring from these inspections there is abundance of evidence, but they should not be limited to any age or class.

Having been begun, however, the practice is certain to spread, and the medical profession must be prepared to encourage the spread and to carry out the work that will be involved.

III.

REASONS FOR ENTERING THE MEDICAL PROFESSION.

Delivered on Oct. 1st to the Students of Charing Cross Hospital on the Occasion of the Prize Distribution at the Opening of the Winter Session,

By Sir HUMPHRY ROLLESTON, Bt., K.C.B., M.D.,
PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

After the privilege of congratulating the prize-winners it is natural to turn to those who have not on this occasion gained the palm, though they have honestly struggled in the dust of the arena, and to remind them that there are after all possible advantages in their lot; just as hereditary wealth or a distinguished parentage is often a handicap by involving the absence of the keen spur of poverty or by providing a false sense of a private and easy road to eminence, so may early success induce slackness. So widespread is sympathy, born of similar experience, for the unsuccessful that there has perhaps been a tendency to minimise the influence of prize-winning by pointing to Senior Wranglers who have not been heard of again, and by drawing attention to the early failures of men afterwards famous. Although precocity may be short-lived and overwork may induce sterility, it seems to remain true, as Sir Squire Sprigge concludes in "Physic and Fiction," that the prize medical students on an average continue to do well. On the other hand, everyone does not develop at the same rate, and the student who matures slowly may eventually be mentally stronger than the more brilliant contemporary of his hospital days. What we are pleased to call chance, because the responsible factors are hidden from our eyes, plays an enormous part in our future, and all we can do is to work so as to deserve success. There is, indeed, an advantage in competing for prizes quite apart from the place obtained in the list; it is a preliminary canter and part of the training for the compulsory examinations that await the student at another place. It provides practice in clear expression and marshalling of knowledge in the written paper, and accustoms the candidate to the trial of a viva voce examination when a question on an all unexpected subject suddenly impinges on an anxiously strained brain and demands an accurate answer. There is thus a serious reason for congratulating those who "also ran" on having carried out this part of their training, not only for the caudine forks of an examination, but for the emergencies that will from time to time crop up in professional life long after the fitful fever of examinations has been well-nigh forgotten.

Let me on behalf of the staff of the Medical School and Hospital extend a hearty welcome to those who are now joining this medical school; it would be impossible to give them better advice than to follow the example and traditions of the great men, such as T. Wharton-Jones, T. H. Huxley, T. H. Green, and F. W. Mott, who have adorned this famous institution.

The Call of Medicine.

Although you have all committed yourselves to the profession of medicine it is not a mere act of curiosity to mention the reasons that may lead up to such a decision. The reasons attracting men and women to our profession may decide in advance what form of practice or activity they will ultimately adopt, and to these brief reference will be made, but usually the wise advice not to specialise early has been unconsciously followed.

The Bread-and-Butter Aspect.

While one, and certainly the commonest, object of entering a profession is, of course, to gain the wherewithal to live, this can be much more easily and successfully attained by going in for business or trade, strictly so called, than for medicine, which has been described as a noble profession but a decidedly bad trade. Still undoubtedly many choose medicine with this aim in view, for, at any rate in the past, more members of the healing art gained a living of a sort than is the case among the followers of the Church or the law; it is true that the prizes are few, and the income is often small, sometimes, indeed, barely a living wage, or, as it has been called, a "starveling"; before the war it was, I believe, estimated that the average income of the members of the profession as a whole was about £300 a year, though this must have been hard to arrive at and then approximate only. Now with the rise in the cost of living it must be much higher, possibly £500 to £600 a year. But just at the present moment there is considerable reason to believe that the medical profession is overstocked by those recently qualified; last year the number of new practitioners registered was 2482, the highest on record; and the number of medical men is increasing more rapidly than the population, so that the rate is approaching one medical man to 1000 of the population. As the result of the rush into the profession after the war, the Universities and examining boards are now at the crest of the wave as regards candidates for the final examination—for example, at the Final Conjoint Board examination in July last there were more than 500 candidates up; it is true that they did not all get through, but that the recently qualified are finding it hard to obtain resident posts there is, I fear, no doubt. This temporary condition must of necessity right itself in accordance with the laws of demand and supply, and indeed this corrective process may have begun already. Last year the entry into the medical profession dropped from 2000 in the two previous years, and 3500 in 1919, to 545, which is little more than a third of that (1500) in the first year of the century. There is also a very considerable fall in the entry of women into the profession; whatever the cause, there is no question that 1923 saw a very distinct drop, which contrasts with the war and post-war rise in the number of female medical students. The evidence of overcrowding among the qualified women and realisation of the difficulty of obtaining posts when a degree or diploma has been obtained may have warned parents not to encourage their offspring, especially their daughters, to choose our profession.

Heredity and Environment.

A not uncommon reason for entering our profession is the accident, so to speak, of environment or heredity. When the father is a medical man the home atmosphere often prepares the son to follow in the paternal footsteps as a normal course of evolution, especially as there may be a practice waiting for him; so without any special ambition or inclination for another walk of life he regards it as a natural family succession. I know of a family with seven generations in succession. This is perhaps a survival or an unconscious imitation of ancient custom, for in very remote times the art of healing was hereditary from generation to generation in the sacerdotal caste. In Ireland until a comparatively recent period the profession of physic passed from father to son, just as did the practice of other arts and crafts, and was a relic of the time when a medical practitioner was attached to the clan or house of a chieftain (Kirkpatrick). On the other hand, a boy or girl may early decide on the physic line and keep to this resolution; the impulse may date from some accidental experience, such as injury or illness, and the resulting contact with the striking personality of a medical attendant; Sir William Bowman is said to have been led to take this step by his interest in the treatment of a wound in his hand sustained when experimenting with gunpowder. Sydenham was attracted to the profession he so greatly adorned by the influence of Dr. Thomas Coxe who was attending his brother, Colonel William Sydenham, in 1646. An allied but apparently curiously infrequent reason is the desire to be in a position to look after one's own disabilities. Elisha Kent Kane (1820–57), surgeon in the United States Navy, who went on the two American expeditions (1850–51, 1853–55) financed by Henry Grinnell in search of Sir John Franklin, originally intended to be a civil engineer, but after an attack of rheumatic endocarditis he was advised by his friends to take up medicine on the ground that he would be happier if he understood and so could manage his own case. Interest may suddenly be awakened by the accident of reading a medical book or article, as in the case of Dr. Tertius Lydgate in George Eliot's "Middlemarch" (p. 104), a portrait known to have been drawn, in part at least, from life. Among those who, like William Hunter, the elder brother of the more famous John, have started life with the intention of entering the Church, but have abandoned that calling for the cure of our vile bodies, was Sir William Osler, who is believed to have been partly influenced in taking this step by reading Sir Thomas Browne's "Religio Medici."

EDUCATIVE VALUE OF MEDICAL STUDY.

A few men, paradoxical as it may at first sight appear, take a medical degree without any intention of ever practising; this is not, as sometimes happens in the case of the Bar, from a belief that it is a kind of social distinction to belong to a learned profession, but because they have already decided on devoting their lives to investigation or teaching in one of the sciences, such as physiology, biology, biochemistry, morphology, or pathology, which are so closely bound up with medicine. Such men rightly recognise that their outlook is greatly broadened by passing through the whole of the medical curriculum, that as research workers they are better placed to understand the bearing of the problems to be solved, and that as teachers of medical students they are thus in a much more advantageous position to deal sympathetically and for the best with future practitioners. In short, the experience gained by passing through the medical curriculum tends to alter the outlook of the teacher of the preliminary biological sciences. Let us contrast the extremes of the groups of teachers—those who know their science only with those who in addition have been through the curriculum—and think for a moment of the difference in the attitude that may be adopted by the two categories of teachers; no doubt much could be said for both; a teacher of the first group might say in his enthusiasm that his function is to teach and examine on the science, whereas one of the other class would consider that his business is to ground future medical men in what he conceives to be necessary to ensure their efficiency.

STIMULANTS AND ANODYNES.

In the days that were earlier, men sometimes entered the medical profession because of their ambition to be in one of the fighting forces; for when prevented by mental or bodily defect from gaining admission to the executive branch they fell back on the Royal Naval Medical Service, the Royal Army Medical Corps, or the Colonial Service. Love of travel and of adventure, which can be gratified in the Services, is another possible incentive, and there is in addition the material attraction of a pension to fall back on. But the shortage of entries into the Services at the present time shows that these factors are no longer operative. Similarly, the number of medical men who now enter the mission field is so small that a desire to be a medical missionary accounts for very few entries into our profession. But how many take up medical work from feelings of real devotion to their fellows, and quietly carry through this ideal in the ordinary rough and tumble of life, it is impossible to guess.

A somewhat unusual reason, for at any rate there are few such confessions, for adopting the medical, though it is far from unknown in the nursing, profession is disappointment in love. James Macartney,[1] the distinguished professor of anatomy and chirurgery at Trinity College, Dublin (1813–37), when refused by Miss Mary Ekenhead, "determined to adopt the profession of surgeon in order to harden his heart"; but the course of his love affairs soon turned into smooth waters, and after marrying Miss Mary he became a demonstrator of anatomy to Abernethy.

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[1] Kirkpatrick, T. Percy C.: History of the Medical School in Trinity College, Dublin, p. 217. 1912.

Paths in the Medical Field.

The factors responsible for taking up medicine may determine the line of practice, general, consultant, specialist, or in the several services of the State, that is eventually adopted. Heredity in the form of a family practice is an obvious example of a reason for becoming a general practitioner; early marriage and the need of money, or love of country life may have the same effect. A bent for research and seeking out "the secrets of nature by way of experiment" of course provides whole-time pathologists, physiologists, and biochemists. Ambition backed by a certain degree of ability and patience of no small degree is responsible for most of those who attempt consulting practice; but even when the decision has been made so far the choice of medicine, surgery, or obstetrics and gynæcology may be determined by opportunity or accident—i.e., the contemporary prospects in these departments of practice at the medical school to which the individual is attached. Thus at one hospital two men who started as general physicians and another who was well known as a pathologist eventually became gynæcologists, and careful calculation as to probable vacancies has been known to settle the choice between medicine and surgery. Interest and technical skill are the natural reasons for adopting one of the special branches, such as ophthalmology, laryngology, otology, orthopædics, urology, anæsthetics, or dermatology, and there is the mundane advantage that the wait during what has been called the mere bread stage, before butter, much less jam, can be afforded from the rewards, is not so prolonged as in the case of the general consulting physician.

IV.

THE MEDICAL MAN OF THE FUTURE.

Delivered to the Students of Westminster Hospital on the Opening of the Winter Session, Oct. 2nd,

By H. J. WARING, M.S., F.R.C.S.,
DEAN OF THE FACULTY OF MEDICINE, UNIVERSITY OF LONDON;
VICE-PRESIDENT, ROYAL COLLEGE OF SURGEONS
OF ENGLAND, ETC.

It is perhaps not altogether unprofitable at times to turn from the record of what has been or a description of what is, to a guess or a surmise of what may be. It has certain advantages, too, over the processes of recording the past; it does not call for the same stern and rigid adherence to fact; it leaves more scope for the imagination: it is a game in which all can join; and you cannot be proved to be wrong—at any rate during your life-time—and the corroboration or otherwise of your prophecies subsequently is a matter which does not very greatly concern you now. I propose, with your concurrence, to give my imagination its head and to make you a present, which I hope may not be wholly unacceptable, of some speculations regarding the medical man of the future. They are speculations for which I do not claim any special powers or authority; they are merely the extension and modification in the imagination of some of the processes and tendencies which I have observed actually at work to-day in the realm of medicine.

The Youth of Medical Science.

Now medicine as a *science* is still very young, although as an art—a profession—it is one of the oldest. If we contrast mathematics and medicine we realise the difference. Greek thought in the world of mathematics is one of the wonders as well as one of the glories of the human mind; imagination, rigorous proof, logical demonstration—all these qualities are present in their excellence. But Greek thought in the world of medicine was of another order. It is true that we find some of the qualities which we still look for in the good physician: we find, for instance, keen and reflective observation; we find a high standard of professional rectitude, and so on. But we cannot say much more than that careful empiricism was the main guide; it was certainly the safer guide. Of anatomy practically little was known and no wonder, when dissection was profanation; of physiology little more, and that erroneous; and such surgery as was practised seems, as far as we can see, to have inflicted the maximum amount of suffering on the unfortunate patient. We are told, at any rate, that the vigour of his protest was proof of the efficiency of the treatment. There is in fact in direct contrast to mathematical thought little of the heritage of Greek thought of value to medicine, and the great name of Aristotle, the prince of observers, was positively a hindrance when in the sixteenth and seventeenth centuries the science of medicine was born, and medicine made a fresh start, based on the anatomy of the great continental teachers, and not less to the labours of our own William Harvey. This is not the only English name. John Hunter, Cheselden, Jenner, and, of course, Lister—names like these stand out and there are hosts of others—less famous perhaps—but men who were sound clinicians and observers, good medical men and possessed of an abundance of those qualities which were necessary to maintain the contact which in medicine is at all times needed between science and human life, that empirical skill, that sanity and common-sense and humanity which, when the *Science* of Medicine was in its very infancy, encouraged it and fostered it and gradually made it what it is to-day.

Science and Practice.

The *Science* of Medicine, though growing vigorously, is still very young, and the probable manner and direction of its growth in the next few years are matters which seem to me to have a great interest for those of us engaged in different ways in the practice of medicine, and especially to those of us who are occupied with questions of medical education. I consider the present time to be a critical one in the development of science and practice. Think, for example, of the great strides made in recent years in chemistry and physics in their application to living organisms and of the resulting sciences, biochemistry and biophysics, which have wrought changes which one may almost call a revolution. I think that the next few years will see further great and important changes. I may not see them myself, but some of you here to-day may do so; and whether I am right or whether I am wrong in my judgment of the particular manner and direction in which those changes will manifest themselves, I think there is no harm and there is probably some good in letting our minds play about with ideas as to possible future developments, and to maintain towards them a certain suppleness and alertness of mind. Criticism—yes—and dissent if you like, but not apathy or indifference—you—all of us—are not old enough for that. I hope we never shall be!

Specialisation and Its Dangers.

You cannot have failed to notice two great processes at work in medical investigation and treatment to-day. They are distinct, though in some respects they are related, and they have both been operative for some years, although the last few years have seen a pronounced extension of their activities. The first is the process of specialisation. The historic division of function between physician and surgeon has given place to countless subdivisions among both branches of the profession. The portions of the human frame and its various organs have been allotted to, or appropriated by, the specialist, whose business it is to be especially conversant with some small territory, and who often boasts of his ignorance of what is outside his boundaries. The eye, the nose, the ear, the throat, each has its special guardian;

it is true that sometimes two or three of these may be found associated, but this is, I feel sure, only a transient phase—only recently the University of London, with the assistance of a generous benefactor, has founded a lectureship in otology. And these are only illustrations. The heart, the chest, tuberculosis, venereal disease, diseases of women and children, the wrongly-named orthopædic surgery —I need not go on to particularise. Doubtless you have heard of specialists in the vermiform appendix. Then, in addition there are what I may call specialists in investigation, pathologists, bacteriologists, biochemists and biophysicists, including, of course, investigators into such subjects as X ray and electrical treatment. This extension of specialisation is, I think, to a great extent inevitable, and up to a point it is, I think, a welcome and desirable process. It is only by means of specialisation that it is possible to make those additions to our knowledge which we call progress, and it is the specialist who can extend the frontiers of our knowledge. But the process has its dangers. One of them is this. The specialist tends to work in isolation and is concentrating all his activities on the one particular branch which he has made his own. Unless he can work in direct relation with other members of his profession this concentration may degenerate into an obsession and he will view every problem from his own particular angle. Further, specialisation is bringing about some unexpected repercussions in medical education, and those who like myself are particularly concerned with medical education at the University, the General Medical Council, and elsewhere, are being constantly met with new demands and new problems. The specialists, who naturally hold that there is nothing like leather, are claimants for the inclusion or recognition of their subject in the curriculum of the medical student. But the student, and this you know full well, replies that life is short, and that even with the lengthened curriculum, the inclusion of all the specialties is a physical impossibility. He is right too; and under the present system there is not time for more than the inculcation of the fundamentals of medical education—a thorough grounding in the preliminary sciences, the intelligent utilisation of the organs of sense, and the acquisition of sound *principles* of medicine and surgery.

NEW METHODS.

The second outstanding feature in modern medicine is the recognition of fresh curative and ameliorative agencies and their continually extended employment. The sweet simplicity of faith which held that the contents of a bottle poured down the throat was the best and in some cases the only method of effecting a cure is now a thing of the past—except perhaps in the ingenious advertisements of patent-medicine vendors. Recently it has taken another form, and we have such irregular practitioners as the napropath who claims to cure all the ills of man by a varied stimulation of the nape of the neck—correctly applied; but these are passing vanities. The human organism, it is agreed, is far too complicated a mechanism to be corrected and adjusted by such simple methods. It is indeed only in comparatively recent years that we have learned how complicated it really is. The physiologists announce every year some further mapping of hitherto unknown territory; the pharmacologist has some new biological reaction to report. But these are by no means the only explorers. Other sciences are taking possession. The study of biochemistry and biophysics is leading to fresh knowledge and fresh treatment, and electricity and radium and light and heat are all being pressed into the beneficial service of diagnosis and of healing. Gradually the forces of all the sciences are being focused on the great task of curing or relieving suffering humanity.

The full significance of this development at which I have only glanced has yet to be appreciated. It is destined, I believe, to revolutionise the practice of medicine and surgery. It has this much in common with the growth of specialisation, that it makes increasing demands upon the time and work of medical students, but it is a different kind of demand. It is not merely a question of a particular method of treatment or of profound acquaintance with some branch of disease; it is more than that. It is a question of new methods of approaching the whole phenomena of human life, of evaluating the human body in terms of physics and chemistry, or if that is putting the claim too highly, it is at least making it necessary to emphasise more strongly than ever the importance of the so-called preliminary or fundamental sciences in medical education. There is, I know, a universal feeling among medical students that the time spent on the study of chemistry, physics, physiology, and pharmacology, and so on, is largely a waste; that these things are regrettable incidents in a student's career, and until he has done with them and has "got into the wards" his medical education has not really begun. I understand this impatience and the desire to get, as it were, to closer grips with the actual practice of medicine, but while I understand, even while I sympathise, I cannot say that this is right. I am afraid it will be little consolation to some of you when I say that in my opinion the medical student of the future will have to spend more and not less time on the fundamental sciences; that in fact to a much greater extent than to-day the value of his work in the wards will be in direct proportion to the preliminary scientific work prior to admission to the wards.

THE FUTURE OF MEDICINE.

Now I want to turn to this question: What is going to be the cumulative effect of these two great developments, the increase of specialisation on the one hand, and the constantly increasing employment of new diagnostic or curative agencies on the other? The answer to this question is really the prognosis of the future of medicine. You will already have observed this fact, which I think is not controvertible —namely, that a patient in a large general hospital, the poor patient as well as the paying patient, has open to him larger, better facilities and resources than any patient outside—no matter how rich or well-to-do he may be. All the tremendous resources of a modern hospital, its laboratories, its elaborate instruments, its trained staff of physician, surgeon, specialist, its pathologist, radiographers, and so on, can be and are employed first in tracking down and discovering the disease and then in its eradication and cure. The recognition of this fact is not confined to medical men. The lay public have in recent years become increasingly aware of it, and instead of the reluctance to enter a hospital—a survival it may be of the pre-Listerian day—the upper- and middle-class public who would formerly have been treated at their homes show a willingness, almost an eagerness, to enter a hospital, and the provision of adequate accommodation for paying patients is now one of the problems which confront the governing bodies of hospitals in London and the provinces. This tendency, as I have said, is growing, and its continued growth is, I think, inevitable, as inevitable as the division of labour in industrial processes, and for similar though far more potent reasons. The investigation and treatment of disease require modern buildings and plant specially adapted for the purpose, and a highly-trained personnel such as one would find in any modern successful factory. No one would now expect any one man to be so conversant with every part of a motor-car as to be able to repair it; we know by sad experience that if any serious trouble develops the part involved has to be returned to the maker for expert and specialised treatment. What, then, are we to expect of the human body, which is infinitely more complicated, delicate, and subtle than any motor-car? Is it reasonable to expect any medical practitioner, however learned and experienced, to be able to give in a complicated case anything more than a general, a tentative diagnosis, to act so to speak as a "sorter" and to refer a patient to the appropriate expert. And even if the seat of the trouble is correctly located—and let us concede that the powers of an accomplished physician do not stand in need of the help of the elaborate laboratory apparatus which a hospital provides—how in many cases is the appropriate treatment to be given without the help and coöperation of others? We know, of course, that in various ways that necessary coöperation and assistance is obtained, but it is done very often circuitously and indirectly. To my mind, however, this is not enough, and I envisage an organisation of the medical profession in which coöperation, joint and united effort will be the systematised normal practice, and when a patient needing advice from a medical man will have brought to bear on his case all the resources for diagnosis and treatment which are at the disposal of a great hospital.

Training of the Medical Student of the Future.

I do not anticipate that this will be substantially longer in *duration* than it is at present. I certainly do not think it should be, for the sooner the energy and optimism of youth are given their outlet in the world the better for their possessor and better, I think, for the world. But while the length of the course at a medical school will be substantially the same as at present, its *character* will differ in some important respects. In the first place, with the raising of the standard of science teaching in our public and secondary schools I should expect that the medical student of the future will enter upon his course with a grounding in physics, chemistry, and biology which is at least up to the standard now exacted for the First M.B. Examination. He will thus gain additional time to devote to the fundamental sciences and the methods of their application in the investigation of disease prior to his admission to the wards. I have already given some indications of the lines which I think that teaching will follow. The physiology will be more comprehensive than is now possible, and it will include a good amount of biochemistry and biophysics. Physics will be carried a good deal higher than the present elementary standard and will be so shaped as to have a very definite bearing on the subsequent clinical work. I should expect, too, more emphasis to be laid on pathology. On the other hand, I venture to think that the study of materia medica is far too detailed and extensive, and I would hazard the opinion that at least two-thirds or three-fourths of the British Pharmacopœia could with advantage be discarded. When the student had entered the wards he would get what he gets now—a sound general grounding in medicine and surgery, but after this stage he would be required to make a choice, and his subsequent course would vary according to the career which he ultimately had in view. By this time it would be realised that it was not humanly possible to cover everything, and that instead of having a nodding acquaintance with several specialties the more excellent way would be to give the student the best possible training in general medicine and surgery, allowing specialisation only in those subjects to which the student intends to devote himself in his practice. Thus the man proposing to take up public health work would take up a course comprising subjects like bacteriology, epidemiology, statistics, hygiene, &c. The surgeon would naturally take more anatomy, &c. The specialists would likewise take such subjects in which they intended to specialise. Each student would thus have at his medical school courses for a thorough training in the sciences on which the art and practice of medicine are based, a comprehensive training in general medicine and surgery, and a good acquaintance with a certain number of the specialties.

ORGANISATION OF MEDICAL PRACTICE.

What of the organisation of medical practice? That I have, perhaps, foreshadowed to some extent in the training. I think that in the big cities and in fact in most urban areas the medical man practising alone will gradually make way for the group, a partnership or association. It will no doubt vary in size—it might in some cases contain as many as six or more individuals, in others, in the smaller towns, it would be less. The group would be organised on the basis of the division of labour working on the lines of specialisation. The specialisation, however, would not be so intense as to divide the group into water-tight compartments; the training each man would have received in fundamentals and in general medicine and surgery would render him competent to deal with ordinary cases and to recognise anything which necessitated further and detailed investigation and the services of a specialist. These cases would then be handed over to the appropriate specialist of the group, one of whom would certainly be a pathologist, while part or the whole of the group could, when necessary, meet in consultation in cases of any great complexity. In this connexion I foresee an important development. Our so-called "pharmaceutical chemists," who at the present time are simply dispensers and compounders of medicines and vendors of innumerable "patent" nostrums, will be available for the carrying out of many of the chemical investigations necessary in the elucidation of disease. This will be made possible by the education courses and curriculum of the pharmaceutical chemist being improved, modified, and extended. The establishment of the new degree in pharmacy at the University of London will, I trust, help much in this direction.

Associated with each group would be an institution for the reception of patients, which I may call the "health institute" or hospital. It would not be the analogue of the present nursing home, but would approximate more to a hospital in respect of its organisation and its resources, and would be run in association with a group of nurses organised on lines somewhat similar to those of the doctors. The fees would be graduated according to the financial position of the patients, and I do not think that there would be any risk whatever of its financial soundness. It would be linked up with other institutions of a similar nature and with sanatoria up and down the country allowing of the treatment of patients in different climates, and also of a wider choice of specialists.

This coöperative plan is, you will recognise, directly along the lines of development which has in fact already been followed. That is, indeed, one of its merits in my judgment. But it is, of course, much more than a mere partnership based on personal or similar considerations: it is a deliberate association of men trained for the express aim of acting together and of pooling their various attainments, and the "health institute" is a recognition of the fact that modern medicine requires, even demands, coöperative and institutional investigation and treatment. With this it is fairly obvious that a pretty radical alteration in the National Insurance Acts must follow, and I for my own part would not be sorry. I am convinced that under group arrangements such as this it would be easily possible to hand over to the profession the responsibility for the health of the people, and I am sure that the profession would rise to that responsibility.

PUBLIC HEALTH.

I have not time, I am afraid, to deal at any length with the organisation of public health in the future. The present arrangements, in spite of improvements of recent years, are far from satisfactory. There is really no justification for responsibility being divided among three or four different departments of State, and it is difficult to see why the various public services, such as tuberculosis, venereal diseases, vaccination, medical research, &c., are not centralised at any rate in the larger towns, and brought under one roof. Here is a subject in which the medical man of the present can, I think, bestir himself with advantage.

I do not think, if I may say so, that the medical man of the present plays the part which he should do in public affairs, Imperial and local. I know, of course, that the demands on his time and energies are considerable and his leisure scanty, but democratic government will never reach its fullest development unless it can command the services of educated, trained men who are in a position not only to give expert advice on those questions affecting the health of the community which are continually coming up for discussion before Parliament and local authorities, but who are also willing to bear their part as good citizens in all that touches the public weal.

The Medical Man of the Future and the Naval, Military, and Air Medical Services.

I feel a little diffident in forecasting what will be the position of the medical man in the future as regards the Navy, Army, and Air Force. In former times it used to be said that the three fundamentals essential and important in a fighting force were courage, genius, health. First courage, next genius, and lastly, health. Certainly in the wars of former days courage and genius were looked upon as being much more important than health, but commencing with the South African War in 1900 and afterwards in the Great War, health has been looked upon as being quite as essential as the other two. Two primary difficulties have always been met with in the past in connexion with the professional or medical efficiency of the Navy and Army Medical Services. First, administration or the occupation of administrative posts has always been looked upon as being the sure and easier avenue to promotion, especially to the highest offices in the service, whilst the clinical route of approach to promotion, especially to the highest posts, has occupied a very inferior position; and secondly, the clinical facilities available for the regular instruction and practice of the naval and army medical officer have been very deficient. The medical officer of a public service such as the Navy and Army, who is and has been mainly employed in administration, almost invariably becomes from a practice point of view a mere automaton—quite, unable to grasp the essentials for the successful investigation and treatment of disease. Such was the case during the Great War, according to my somewhat extensive experience. In the future I think arrangements must be made whereby a considerable proportion of the civil medical profession shall always be available for immediate service with the Navy, Army, and Air Force, and shall occupy a proper and not a subordinate and inferior position. In addition, extra provision must be made for the regular training of Naval, Army, and Air Force medical officers in well-equipped schools, provided with a sufficiency of clinical material.

V.

FIFTY YEARS OF MEDICINE.

Introductory Address at the Opening of the Medical Session, King's College Hospital, on Oct. 1st,

By Sir DAVID FERRIER, M.D., F.R.S.,
CONSULTING PHYSICIAN TO THE HOSPITAL; EMERITUS PROFESSOR OF NEUROPATHOLOGY, KING'S COLLEGE.

It is now 50 years this day since I last had the honour of giving the introductory address at the opening of the session of the King's College Medical School. Half a century is a long period in one's professional life to look back upon, yet I often find it difficult to realise that so many years have elapsed. It is one of the proclivities—or perhaps infirmities—of age to like to revert to the past; and if I may indulge in this respect for a few minutes, it is not as a *laudator temporis acti*, but in order to draw some lessons which may have a useful bearing on the present and the future.

At the time of which I am speaking—viz., 1874—Listerism was only in its infancy, and but slowly making way against great inertia, as well as much active opposition. For although in 1867 Lister had been successfully applying to surgery Pasteur's doctrines as to the germ theory of fermentation, his views had not yet been generally accepted, or extensively put in practice. Surgical operations were relatively limited in range, and followed by frightful mortality; surgical wards often reeked of suppuration and sepsis; and many surgeons were still operating with instruments, and in garments, swarming with putrefactive germs. As late as 1880—three years after the advent of Lister to this hospital—when my late colleague, Prof. Gerald Yeo and I, at a meeting of the British Medical Association, showed that with antiseptic precautions the most formidable operations could be made on the brain without risk of the otherwise fatal meningo-encephalitis, there were not wanting eminent surgeons and others who shook their heads incredulously, or expressed their entire disbelief in the germ theory of sepsis. It is difficult for those of you of the present generation to realise the state of affairs not only in surgery, but in other departments of medicine 50 years ago. Our remedies were for the most part purely empirical. The science of pharmacology was only in its infancy, and we could give little or no reason for our prescriptions beyond the fact that they had been found useful by our predecessors. Yet it should never be forgotten that, so far as pure observation could carry them, unaided by other than the most simple instruments of precision, the physicians of old have never been surpassed in their delineation of the symptoms and natural history of disease, and skill in prognosis. The names of Sydenham, Heberden, Bright, Matthew Baillie, and many others among our countrymen, will compare favourably with any of those of the present day. If their theories as to ætiology and pathology were often founded on what we can now smile at as crude assumptions, we need not pride ourselves unduly on our superior knowledge. Considering the transformation or revolution that is taking place at the present day in our conceptions of life, matter, and energy, it is not unlikely that some one of my audience, reviewing the progress of medicine 50 years hence, may have to comment in a similar manner on the primitive character of our present-day notions on many problems of health and disease. Still, when all is said, I think, as regards scientific medicine, we may, like the son of Tydeus, reasonably "boast that we are much superior to our fathers."

The Value of Experiment.

Now what has been the principal cause of this superiority? Unquestionably, in my opinion, it has been obedience to the illustrious Harvey's injunction to the College of Physicians to "search out the secrets of Nature by way of experiment." It is by the application of the experimental method to the elucidation of vital problems that within the last half century medicine has been so transformed that its progress has with truth been characterised as a veritable romance. As the late Lord Fletcher Moulton in his evidence before the Royal Commission on Vivisection has said: "No man who knows anything of science has any doubt whatever that the right way to advance knowledge is by experiment. When we are reduced to observation, science crawls. When, and in proportion as, you can use experiment, the science advances rapidly. The more complex the subject is, the more factors there are at work, the more essential the experimental method is, and the most complex of all phenomena are those that relate to human beings."

What can be considered more marvellous than the powers recently conferred on medicine by physiological experiment on the ductless glands and their secretions? As the late Sir William Osler has picturesquely expressed it: "No such miracles have ever been wrought by physicians as those which we see in connexion with the internal secretion of the thyroid gland. The myth of bringing the dead to life has been associated with the names of many great healers since the incident of Empedocles and Pantheia; but nowadays the dead in mind, and deformed in body, may be restored by the magic wand of science. The study of the interaction of the internal secretions, their influence on development, upon mental powers, and upon disorders of metabolism, is likely to prove in the future of a benefit not less remarkable than that which we have traced in the infectious diseases" ("The Evolution of Modern Medicine"). Osler's prediction has been amply verified within the few short years since his lamented death by that most recent triumph of experimental vaccine, the discovery of insulin, the "elixir vitæ" to thousands of sufferers, living precarious lives, with fatal coma, like the sword of Damocles, threatening to descend on them at any moment. How this appears to unprofessional eyes may thus be described in the words of Lord Knutsford in the recent debate in the House of Lords on the Dogs' Protection Bill: "You see a patient come in to hospital with large eyes, sunken face, and stooping figure. He is given insulin. It is not a conjuring trick. It is a miracle. In quite a short time the man is bright and happy and smiling again, and his disease is forgotten."

The Work Ahead.

But while we can boast of triumphs such as these, we cannot afford to rest and be thankful. The problems that demand solution are many and urgent. Though we know a good deal as to the characters, mode of growth, and dissemination of many of the infective germs, we as yet know little or nothing of others—the so-called filter-passing germs—and still less any satisfactory method of combating their ravages. Our knowledge of cause unfortunately outruns our ability to prevent or cure. The tubercle bacillus was discovered over 40 years ago; and yet, in spite of all our efforts, it slays its thousands every year; and the same has to be said of other diseases of men and animals, which cause incalculable loss of health, wealth, and life. The state of affairs is still worse in regard to diseases of which we know neither the cause nor the cure, such as disseminated sclerosis, progressive muscular atrophy, paralysis agitans, and the like. Most prominent of all in the eyes of the world at the present moment is the problem of cancer, which unhappily seems to increase as civilisation advances. Our hopes were recently raised high that here again Toronto had achieved another magnificent triumph, only to be shattered by further examination. We need not, however, despair, only we must guard against being over-sanguine as to the results of investigations of a purely ad hoc character. These will no doubt narrow the approach and pave the way to the ultimate solution; but it is quite possible that the key to the mystery will, after all, be given by some research undertaken for its own sake, or without any obvious bearing on the problem in hand. Many such instances might be quoted. It would, for example, seem a far cry from a jelly-fish to a human being, yet, as Lewis has recently shown, Romanes's experiments on the bell of the Medusa have furnished the explanation of that most dangerous state of the human heart, auricular fibrillation, and the rationale of its treatment.

Straw for the Bricks.

The history of science affords abundant illustrations of the fact that the most important and far-reaching consequences may flow from apparently insignificant beginnings. There is not a single addition to natural knowledge, physical, chemical, or biological, which does not find its appropriate place in the grand edifice of science and the powers it confers on mankind. The conquest of ignorance is our only sure defence against the diseases and other evils with which we are constantly threatened and assailed. Yet, though pure science receives much lip-homage, it receives but little general support, and medico-biological research in particular not only little support, but much ignorant opposition unless it gives immediate protection against disease, or promises absolution from the consequences of sins against the laws of health and indulgence for future transgressions. One is constantly met with the question, "What is the *practical* object of your proposed research?" If you cannot make this sufficiently plain to the unenlightened, you are apt to be regarded as a visionary, out of touch with the realities and needs of the world. This attitude is unfortunately not confined to the laity, but is all too frequently found even in our own profession.

While there is no branch of science which does not bear directly or indirectly on practical medicine, that which, above all others, most intimately concerns you in your study of disease is physiology—appropriately termed the Institutes of Medicine. It is only by an intimate knowledge of the functions of the various tissues and organs of the body and their inter-relations, practically applied in the clinical wards and pathological theatre, that you can appreciate the true nature of disease and the meaning of its symptoms. And it is this alone that can furnish a sound basis of independent judgment, and secure freedom from slavish adhesion to any system, or blind obedience to the words of any master.

Unchanging Essentials in the Art of Medicine.

It would, I think, be a great misfortune if the increased facilities which scientific methods have provided us with for the diagnosis of disease, such as the X rays, electrocardiograph, biochemical and other tests, should lead to atrophy of the *tactus eruditus* and other trained faculties of the skilled practitioners of old, or to neglect of the simple or unaided methods of diagnosis, such as percussion, auscultation, and the like. It would not be well if a surgeon were unable to diagnose the existence of a fracture or dislocation without the aid of a radiogram; or for a physician to be dependent on similar aid for the recognition of a consolidation of the lung, or the existence of a tumour in the brain. Some indications, however, have been noted by our examiners of a tendency on the part of the younger generation to neglect the simpler methods and to rely too exclusively on aids which may not be available at the critical moment. Delicate physical and chemical apparatus are necessary in the clinical laboratory, but the results must be incorporated with those of other methods, and capable of application by the practitioner in the ordinary course of his work. The various methods should supplement but not supplant each other, and as we see clearly only what we are prepared to see, clinical vision should be sharpened rather than dulled by the light of science.

Nor does scientific pharmacology necessitate the abandonment of purely empirical methods which long experience has proved to be of value in the relief of suffering. The theories on which they have been based may appear to us fanciful, and we may not be able to give a rational explanation of their *modus operandi*, but it would be foolish to discard them. There are many remedies, now out of fashion, which are still relied on, and apparently on good grounds, by physicians of ripe experience and sound judgment. Nor should the study of the scientific bases of medicine ever be divorced from the most thoroughgoing study at the bedside. The human body is a much more complex organism than that of the lower animals, and infinitely more so than any mere physical or chemical compound. The agents employed in the treatment of disease do not necessarily act in vivo only as they do in the test-tube. The living body is, as Prof. H. H. Dale has said, in many ways an essential partner in its own cure. And, more particularly, the psychical side of man—the impulses and emotions by which he is swayed—constitutes a factor which highly complicates the action of all the remedies of the Pharmacopœia. Though much valuable work has been and is being done in this direction (Lange, Pavlov, Cannon, and others), we as yet know comparatively little as to the mode of origin and channels of transmission of those corporeal influences; but it is certain that the pleasurable emotions such as faith and hope *exalt*, while the depressing emotions, such as fear, doubt, and anxiety, *depress* all the vital functions. How to promote the one and combat the other is often more a mark of therapeutic skill than a judicious selection from the Pharmacopœia.

SUGGESTION IN HEALING.

This has long been implicitly recognised and acted on in daily life. Prescriptions, apart from any intrinsic value they may possess, are also largely vehicles of suggestion. Everyone knows that a prescription by the eminent physician, Sir A. B., of Harley-street, may have a very different therapeutic value from exactly the same prescription given by Mr. C. D., of Little Pedlington. And there is a grain of truth in the remark by Petronius Arbiter, the cynical courtier to the Emperor Nero, that a physician is "only a satisfaction to the mind." I have no intention of critically examining the respective merits or demerits of the various methods of suggestion, but would merely remark that suggestion, however induced, should be kept in its proper place. No amount or kind of suggestion will, for instance, reduce a dislocation or remove a tumour from the brain. Apart, however, from special methods of suggestion, however commendable some may be in certain circumstances, it must ever be the endeavour of the physician to mobilise all the defences of the organism, psychical as well as physical, against the attacks of disease and for the restoration of health. There is one factor within reach of you all—surpassing all others in importance—and that is *a thorough knowledge of your work*. This by itself can outweigh a multitude of defects, and will constitute the best and most solid basis of that self-confidence and decision which are so necessary to inspire faith and trust on the part of those with whom you have to deal.

A CRITIQUE OF THE SURGICAL TREATMENT OF ANGINA PECTORIS.

BY SIR JAMES MACKENZIE, M.D. EDIN., F.R.C.P. LOND., F.R.S.

THERE has, in recent years, been an endeavour on the part of surgeons to seek for new fields, and there seems no region of the body which the surgeon is not prepared to invade. The impression has got abroad that the feats of the surgeon are indications of the progress of medicine. When operations are carried out with a full knowledge of the morbid conditions which it is intended to relieve, and with a knowledge of the functions of the structures which the surgeon cuts in his operation, there might be some reason for regarding such surgery as an example of the progress of medicine, but when the surgeon is profoundly ignorant of the morbid condition for which he operates, and of the functions of the structures which he mutilates, it is impossible to conceive anything more detrimental to progress. At one time the surgeon was supposed to have a knowledge which would enable him to make not only a diagnosis but a prognosis, so that he could tell whether his interference would be to the patient's benefit. But the trend of modern medicine with its specialism is, that the surgeon dispenses with this kind of knowledge and relies upon others for instructions when to operate.

This tendency is well illustrated in the surgeon's excursions into the treatment of angina pectoris. I do not suppose there is a surgeon who would even pretend to understand the morbid condition which gives rise to the symptom-complex called angina pectoris. The knowledge of the functions of the vagus and the sympathetic which the surgeon cuts is so imperfect that neither he nor the physician who advises him understands but a fraction of the functions of these nerves.

Present Knowledge of Causes of Heart-Pain.

Before such a formidable and dangerous operation is undertaken it is advisable that the state of knowledge of the diseasesd conditions which are associated with, or give rise, to angina pectoris should be recognised.

It is a reflection on the state of medicine that such a clamant, distressful, and universal symptom as pain should be so little understood, that it is impossible to tell what the agents are which are concerned in its production, and it is not even known how to proceed to find them out. It is recognised that there are structures which, when mechanically stimulated, produce pain, and other structures which when so stimulated do not produce pain, but which by other forms of stimulation do give rise to pain. Anatomy cannot tell us the difference in the nerve-supply which this observation indicates, nor can physiology tell us the vital processes concerned in the production of pain in organs that cannot be mechanically stimulated to produce pain. The consequence of this state of affairs is that a subject like angina pectoris is still a matter for vague speculation, and the employment of such drastic treatment as a surgical operation for a condition so little known does not redound to the credit of medicine.

The aim of surgical treatment is not to "cure" the disease but, by cutting the nerves which convey impulses from the heart to the central nervous system, to prevent the patient feeling pain. These nerves are the sympathetic and vagus—two nerves whose functions are as imperfectly understood as the nature of angina pectoris. It must be remembered what little is known of these nerves from experiment is limited practically to the *efferent* part of the nerve. The part played in the economy by the *afferent* part is unknown save for some crude experimental results—and these are imperfectly interpreted. It is the *afferent* nerve which the surgeon seeks to cut, and so this operation is one where structures are cut whose function is unknown, beyond the fact that they convey impulses from the heart to the central nervous system for a condition that is still the subject of speculation.

After-History of 1000 Patients.

In an analysis of over 2000 patients who suffered from heart pain lately undertaken by me, the notes of 1000 were discarded as the histories of the patients after the notes were taken were not satisfactorily recorded. In the remaining 1000, the future course of the health of the patients was recorded with sufficient precision to enable certain conclusions of value to be drawn.

The patients could be divided into two groups. One, the smaller, in which the pains were not associated with any disease of the heart, and another group where such disease was present. The pain, its situation and onset, and the other symptoms associated with it, were the same in both groups.

In angina pectoris the chief structures concerned are the nervous system and the tissues of the heart, and disturbance of either may result in pain. In the former group the pain is due to disturbance of the nervous system. It has long been recognised that in certain forms of ill-health, symptoms due to disturbance of organs which are themselves perfectly healthy may result from disturbances of the nervous system. The most striking of these is vomiting. Pain also is a frequent expression of a similar form of disturbance, so that the pain and other symptoms associated with angina pectoris are not infrequent in people whose hearts are healthy, but who suffer from ill-health which disturbs the nervous system. The vast majority of these patients are women under 50 years of age. During the war numbers of young soldiers showed all the signs of angina pectoris, but they all suffered from some infection, often too obscure for identification, but which in some instances was ultimately found to be "trench fever."

I have followed some hundreds of these cases of "secondary angina" for many years, and not one has died from an affection of the heart—the heart symptoms in every case disappeared, many were restored to health, others were crippled from the persistence of the original complaint or from some of its effects.

In the larger group, "Primary Angina Pectoris," there are morbid changes in the structures of the heart which are progressive. The first appearance of the signs of angina is, as a rule, insidious, being usually a slight sense of discomfort, felt across the chest generally on making some form of effort which had hitherto been performed with perfect ease. At first the discomfort may appear at rare intervals, and is brushed aside as indigestion or ignored. In course of time it becomes more frequent, more easily provoked, and may culminate in violent pain, occurring in "attacks." There may only be one severe attack, or there may be a series coming on at intervals for days, weeks, or months. Complete rest being enforced for a period the attacks subside and the individual may be free from attacks for many years, or there may be a recurrence in a few months, but the tendency never disappears—the attacks being apt to come on under particular circumstances, as on walking after a meal, or against a cold wind, or on first starting after a rest—the patient nevertheless being able to lead a useful life.

Morbid Changes Found.

In nearly every instance slowly but surely the response to effort becomes restricted and the pain tends to appear with ever-increasing facility. When death arrives, it may be many years after the onset, morbid changes are invariably found at the post-mortem examination, although the physical examination during life may have given no signs of anything amiss.

The morbid changes in the vast majority of cases are found mainly in the coronary arteries and in the muscle of the left ventricle. If these changes and the effects they produced during life be studied, some idea can be formed of what "angina pectoris" signifies. Although no two cases are identical, in regard to the part affected, yet the nature of the morbid process and its resultant effects are remarkably alike in the majority. These consist of such narrowing of the lumen of some part of the coronary artery, that the supply of blood to the muscle is so diminished as to impair not only the functional efficiency of the muscle, but to lead to degeneration and destructive changes in the heart muscle.

If it be borne in mind that the healthy coronary artery is very distensile, and that when the heart is called upon to increase its work in response to effort, there is required a greatly increased supply of blood, not only is the reason for the distensile artery apparent, but also the effect which is bound to follow when the lumen of the artery is narrowed and its walls become rigid.

Angina pectoris is the subject of investigation at the St. Andrews Institute, and so far, post-mortem examinations have been made on seven patients, of which the three figures are typical. The results of these examinations are like the 50 odd post-mortem examinations I had made on my own patients, and correspond with numerous published records since Heberden and Jenner's day, so that they may be taken as typical of the more common forms of angina pectoris.

If one inquires what were the evidences shown by such damaged hearts during life, pain, especially in response to effort, was common to all. The processes which led to these morbid changes must have taken many years. Indeed, one can reasonably infer that they must have been going on for many years before the response to effort was so diminished as to produce the early signs of distress. It is therefore impossible to tell the duration of the morbid processes that lead to angina. The duration of the symptom of "angina pectoris" can only be estimated from the time that pain appeared, and therefore its onset has no relation to the onset of the morbid process which induces the pain. As this symptom depends not only on the morbid condition, but also on the exposure of the individual to conditions that favour the production of pain, the history of the onset is of doubtful value for any purpose. One of my patients reached the age of 80 before he had any pain, and it came on because he was forced to run 100 yards at the top of his speed—an amount of effort he had not undertaken for 20 years.

The Removal of a Danger-Signal.

Study of the morbid changes in the hearts of patients who have suffered from angina pectoris brings clearly before the mind what the condition is that the surgeon is to treat when he proposes to operate. No one would claim that he can "cure" angina pectoris by operation or any other procedure. All the surgeon could hope to do would be to cut the nerves that convey the impulses which give rise to pain, from the damaged heart to the centre of consciousness.

Is such a procedure wise and for the best interest of the patient? Putting aside the question of what damage may be done by the cutting of such important structures as the sympathetic and vagus nerves—nerves whose functions, be it noted, are, even yet, scarcely understood—and apart from the danger of the operation and the possible damage which may result from the mutilation that accompanies such an operation, the question arises. Is it to the best interest of the patient that he should be deprived of a signal, it may be, of great value?

If we look at these hearts it is manifest that they could only accomplish a small part of the work which a heart should perform. Muscles like the heart can be forced to work till a stage is reached when they can do no more work. When this stage is reached, no blood can be thrown out and the consequences of a failure of output are unconsciousness and death. Moreover, one of the provoking causes of ventricular fibrillation is a defective blood-supply and this is a common cause of death in angina pectoris.

On the other hand, a sign given out by muscle when exhausted, and particularly when forced to work when the blood-supply is defective, is pain. In the early stages of the suffering, the failure to recognise the significance of pain often leads the individual to persist in efforts beyond the heart's capacity, with the result that the exhaustion of the heart muscle reaches a stage that pain of a great severity is induced which, as already said, may last for a considerable time—until, indeed, a measure of strength is restored to the heart muscle. Great numbers of patients get to recognise the significance of pain and by taking thought of the circumstances that provoke it, can lead useful lives free from distress for many years.

One could cite many instances which throw light upon this matter, but one may suffice as it illustrates several very important features which have not received that consideration which is their due. A man began to suffer from angina pectoris, the pain coming on only in response to effort. An examination revealed nothing but a systolic aortic murmur. A year later he began to have attacks of loss of consciousness, which were found to be due to partial heart-block. After some months the block became complete, the pulse being constant at the rate of 30 per minute. The attacks of loss of consciousness ceased and he suffered no more from pain. On effort he could do less, and was stopped on account of a sensation of weakness and breathlessness. He dropped down dead three years after the first appearance of pain. At the post-mortem examination the aortic valves were sclerosed, and the sclerosis extended up the aorta and embraced the mouths of the coronary artery, which was rigid and narrowed, it extended down into the heart muscle and had destroyed the auriculo-ventricular bundle.

It is thus seen that these diverse phenomena, the aortic systolic murmur, angina pectoris, and heart-block, were all produced by the same morbid process. But the point of interest here is the pain and its cessation. The narrow, rigid orifice of the coronary artery manifestly would not dilate to permit an increase of blood to meet the requirements of the muscle, and in consequence the muscle, like all muscles forced to work with deficient blood, gives rise to pain.

When complete heart-block set in, it was impossible for the ventricle to be stimulated to increased effort, for the rate of the ventricle never varied from 30 per minute at rest or on violent effort. Consequently there was no demand for an increased blood-supply, and effort was limited, not by pain, but by sensations provoked by a diminished output of blood from the heart.

Pain not in Itself Dangerous.

Great as the distress is which pain produces, pain itself is in no sense a dangerous symptom. It may be associated with conditions which are dangerous, but such dangers are not rendered less dangerous by easing the pain. Indeed, it often is a beneficent agent, in directing attention to the presence of a morbid condition, and more especially in warning that the persistence of a particular condition is harmful. It is in this latter sense that pain is beneficent, and used in conditions like angina pectoris it forms one of the most helpful indications for preserving the efficiency of the heart. It is manifest that the amount of work the damaged heart can perform is limited, and the indications for treatment are to save the heart muscle from over-exertion. The measure of the amount of work is found in what can be done without distress. It is well recognised that, before pain arises, there are faint signs experienced which indicate that with persistence pain will be induced, so that taken as a signal to desist, the individual then knows what amount of effort it is safe for him to undertake. In this way many people are able to pursue even laborious occupations with no discomfort and no danger.

To remove this valuable indicator in the present state of our knowledge is, to my mind, extremely hazardous and bad practice. When a better knowledge is acquired it may be found of value in some instances, but so far as I can see there are no indications which would enable suitable cases to be recognised. I have carefully studied the published records of cases operated upon, and these records show no consciousness of that division of angina into primary, with varying degrees of morbid changes, and secondary, with no affection of the heart. Moreover, the records both before and after operation are given so imperfectly that no clear conception of the nature of the condition can be ascertained, except those who died in consequence of the operation.

It must be remembered that, though pain may be relieved, the patient is not "cured," nor is the progress of the disease stayed. As the vast majority of patients live for many years after the first appearance of angina pectoris, the fact that a patient is free from pain for months or years is not evidence that his condition is improved. Such patients as have been operated upon and have recovered from the operation would afford the opportunity for investigation, not only of the results of the section of nerves, but of the response of the heart to effort, to find out, not only how the heart's movements are affected, but what are the sensations which warn the patient of the heart's exhaustion. So far the published reports fail to afford this information.

Need for Re-Investigation of Cardiac Nerves.

The attempt to find a reason for employing surgery in the treatment of angina pectoris has revealed that very little of practical value is known about the functions of the vagus and sympathetic nerves, and in consequence plans are being formed for the reinvestigation of these nerves. Before such a laudable enterprise be entered upon it would be well for the investigators to review all the work that has been done on this subject and to study the reasons why so little is still known. It will be found that a great number of experimental observations have been made and certain reactions have been detected, but the interpretations of these reactions are imperfect and unreliable. Thus, an increase or a decrease in the rate of the heart may have been recorded, but it is not known what structures were involved in bringing about these changes in rate. The interpretation which holds the field to-day was made at a time when the presence of the conducting system was not even suspected. No movement of the heart can take place without the participation of this system, and so little is known of this system that its study can scarcely be considered to be begun.

Such observations that have been made on these nerves have been almost entirely limited to the *efferent* nerves. In clinical medicine, and especially in dealing with angina pectoris, it is the part played by the *afferent* nerves that has to be known, and except the results of some crude badly interpreted experiments, nothing is known of the afferent system of nerves. The reason for this is that the afferent system of nerves of the whole body are beyond the range of experimental observation. The most important functional part of the afferent nerve is situated in the fibrils at its peripheral distribution—in the skin, and in the substance of the organs—and it is the manner in which these peripheral fibrils are stimulated which requires to be found out. In experiment when the nerve is cut, this essential part is cut off and cannot be replaced by electrical stimulation of either cut end. It would be as reasonable to investigate sight by cutting off the eyeball and stimulating the stump of the optic nerve as to investigate the function of an afferent nerve by cutting it and stimulating its stump.

The clinical evidence of the part played by the afferent nerves is abundant. The whole series of phenomena in angina pectoris are but evidences of their activity—the pain, the constriction of the chest, the flow of saliva, and other signs are all evidences that impulses have arisen in the heart and have been transmitted to the central nervous system. So little, indeed, is known that the source and nature of these impulses is still a matter of controversy.

Such matters as these must be considered by would-be investigators, as well as the reason for the defective knowledge which continues in spite of all attempts to find out the function of these nerves. It is likely that it will be found that some concept other than those which have guided research in the past must be employed, and it may come to pass that such an investigation can only be carried out by using the opportunities of the clinical observer.

THE DANGERS OF UNABSORBABLE SUTURES IN GASTRO-ENTEROSTOMY.

WITH REPORT OF A CASE.

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THE following case illustrates the unfortunate results of the usage of thread or silk as a suture in entero-anastomosis.

The patient, a soldier, aged 37, was admitted to Queen's Hospital, Sidcup, Kent, on Sept. 3rd, 1923, with a history of abdominal pain and vomiting for six years, and of a perforated duodenal ulcer and laparotomy on March 29th, 1922, and a subsequent laparotomy with posterior gastro-enterostomy on Oct. 10th, 1922. He stated that since the last operation he had had constant recurrence of pain and vomiting, the attacks lasting three days to two weeks, with periodical intermission.

Symptoms.—(1) Pain, gnawing in nature, in the left half of the epigastrium, lasting two to three hours, but eased by taking food or by lying down. Patient woke about 10 P.M. to 3 A.M. every night through discomfort. He was relieved by hot fluids, bismuth, or hot flannels. (2) Vomiting was rapidly induced by the pain, which it relieved; dark in colour, bitter, slimy in nature. Heavy foods—e.g., meat, potatoes, &c.—accentuated the pain and vomiting. (3) Hæmatemesis. There had been three attacks of hæmatemesis since the last operation. Bowels not constipated; appetite very good; had lost weight.

Abdominal Examination.—Two well-healed laparotomy scars; no hernia. Splashing and gurgling over a much dilated stomach; tenderness in the left half of the epigastric region with slight general abdominal rigidity. Nothing else abnormal detected.

X Ray and Bismuth Meal (screen and film).—Duodenal cap normal and no tenderness in this region. Large intestine slightly ptosed. First fractional test-meal (Oct. 15th, 1923): Increased total acidity and free HCl—viz., 60 to 146 per cent. From Oct. 16th to Dec. 15th, 1923, patient was kept under observation with light fish diet, large doses of alkalis and belladonna, but showed no improvement in his symptoms or general condition. Second fractional test-meal: Showed marked hyperacidity in excess of Oct. 15th. Thus the total acidity varied from 55 to 80 per cent.; in two and a quarter hours it reached 100 per cent. Free HCl 55 per cent. (0·205 to 0·235).

General Health.—The man looked ill and wearied; muddy complexion. Tongue furred, teeth fair, pharynx congested. Is of alcoholic habit. Nothing abnormal in chest, renal, or nervous systems.

Diagnosis.—The recent history of characteristic pain and vomiting, the hæmatemesis, the marked hyperacidity despite a previous gastro-enterostomy, pointed to fresh ulceration, probably gastro-jejunal.

Operation (Jan. 4th, 1924).—Anæsthesia, gas and oxygen induction followed by spinal anæsthesia (stovaine). Supra-umbilical incision. On opening the peritoneal cavity many adhesions were found. All of these were separated and ligatured or transfixed. The stoma of the old posterior gastro-enterostomy was examined and found barely to admit two fingers, and to have a hard, unyielding edge. Palpation of the stomach did not disclose any other abnormality. The stomach was then opened above the cardiac side of the anastomotic opening. There immediately presented a dark, hard mass the size of a cherry (afterwards found to be blood-clot), connected to the stoma by a long, loose pedicle. This was recognised as an old thread suture. The gastric opening was then closed and another opening made which gave better access to the anastomosis. It was now obvious that the thread suture had been used for the previous gastro-enterostomy, and had partially ulcerated out, so that the two strands were still connected to the anterior and posterior lips of the stoma, while the unattached ends, matted up with old blood-clot, moved freely in the gastric cavity. There was a large crater-like ulcer involving the anterior and posterior walls of the stoma for about two-thirds of the circumference. This extended upwards and downwards into the stomach and jejunum respectively. The whole anastomosis, with an inch of stomach and jejunum, excised. New posterior anastomosis made, using 30-day catgut and Souttar's needles. Scar of old duodenal ulcer almost healed, but slight pyloric stenosis persisted. Nothing else found. Abdomen closed in the usual manner.

Progress after Operation.—The patient made an uninterrupted recovery, and was allowed to get up in 28 days time. He was given large doses of alkalis and paraffin with an occasional aperient, and kept strictly on fish diet. He occasionally had a sharp pain in the upper right abdominal quadrant on turning over, but this has gradually decreased and should disappear.

Conclusions.

This case very aptly illustrates two important points (to which Woosley [1] drew attention in a similar case). (1) That the use of unabsorbable suture is a mistake in gastro-intestinal surgery; the suture of choice is chromic or tanned catgut. (2) If a gastro-jejunal ulcer develops it should be treated surgically and not medically—i.e., by excision of the original anastomosis and the ulcer, and a reconstruction nearer the lesser curvature. Both Walton [2] and Gronnerud [3] have given up silk or thread suture, and lay stress on their experience that since abandonment in favour of catgut they have had no incidence of peptic ulcer. Wright [4] describes a case where silk was used for an anterior gastro-enterostomy which was followed in the same year by a gastro-jejunal ulcer. This was infolded, but eventually perforated. Complete excision and a posterior gastro-enterostomy had then to be carried out, with no recurrence of any trouble two years later. He makes the striking statement that his records show 13 cases of gastro-jejunal ulceration due to silk suture. Adams [5] records the occurrence of a gastro-jejunal ulcer three years after anastomosis; a silk knot was found in the centre of the ulcer.

With such striking evidence before him of the disasters liable to follow the use of unabsorbable suture the surgeon should surely turn to other material. Thirty-day catgut, preferably on a Souttar's needle, supplies the want.

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LESIONS OF THE TRACHEA IN PULMONARY TUBERCULOSIS.

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THE anatomical situation and inaccessibility of the trachea may account for the small amount of consideration which it has received in cases of pulmonary tuberculosis. Yet by virtue of its position it certainly deserves attention, as it is a channel of considerable length through which many virulent organisms pass on their way to or from the lungs.

My interest in the trachea was first aroused by noticing its condition in a series of 133 autopsies on cases of pulmonary tuberculosis at Colindale Hospital, Hendon. In this series I found the trachea showed abnormal features in 44 per cent. of the cases. A small amount of congestion of the mucous membrane was not taken into account in arriving at this figure, as it was present in almost all the cases.

The lesion varied from a slight œdema of the mucous membrane to a general ulceration of the whole surface, and it was therefore possible to form a good idea of the sequence of events. The mucous membrane becomes increasingly congested until it is a deep purple in colour and considerably thickened by œdema. The surface then begins to desquamate and small superficial ulcers form. These gradually coalesce so that a large irregular shallow ulcer is formed, having a slightly raised edge but with very little induration. The walls are ragged and soft, and are surrounded by an area of deeply congested tissue. The lesion is generally confined to the area just proximal to the bifurcation of the trachea, but occasionally assumes a diffuse form, the whole surface of the trachea becoming covered with numerous irregular shallow ulcers.

In 68 per cent. of the cases in which ulceration was present the lesion was more pronounced on the right side, but occasionally it becomes localised in the middle line and then the ulceration assumes a more penetrating character, and the lesion is deep with indurated walls. In one of my cases the base of the ulcer exposed the pre-tracheal muscles and fascia over an area half an inch in diameter, almost constituting a spontaneous tracheotomy. The relation of ulceration of the trachea to that of the larynx was worked out in order to determine the relation between them, but it was found that in the 58 cases which showed a pathological condition of the trachea the coexistence of definite ulceration of the trachea with infiltration or ulceration of the larynx occurred in all but two cases, although in the 81 cases of laryngeal tuberculosis (both extensive and slight) the trachea escaped 25 times. This compares fairly favourably with the Brompton Hospital figures, in which series of 214 cases the trachea was affected and the larynx escaped 13 times, but 74 cases showed ulceration of both larynx and trachea.

On reviewing the clinical notes of the cases which exhibited gross tracheal lesions, I found that all the patients had complained of a loud distressing cough of a paroxysmal character and very refractory to treatment. With the cough there was deep-seated retrosternal pain and a raw aching sensation across the chest after a bout of coughing. All the cases suffered from dyspnœa and a feeling of tightness across the chest. None exhibited any superficial tenderness over the sternum. Generally there was little sputum, and the lungs at autopsy displayed extensive fibrosis.

Treatment seems to have been difficult and at most only palliative, but a fair amount of relief from the painful bouts of coughing was obtained by frequent insufflations of pulv. anæsthesin and orthoform in equal parts, administered through a Leduc's tube.

ANTIPNEUMOCOCCAL SERUM IN THE TREATMENT OF LOBAR PNEUMONIA.

AN ANALYSIS OF TWENTY-SEVEN CASES.

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THE modern treatment of pneumonia with antipneumococcal serum dates from the discovery of the pneumococcus in 1884 by Fraenkel.[1] Early attempts at serum therapy include those of G. and F. Klemperer[2] (1891), Foa and Scabia [3] (1892), Washbourn [4] (1897), Pane [5] (1897), and Neufeld and Händel [6] (1912). Truche, Cramer, and Cotoni [7] in 1911 demonstrated the virulence of the pneumococcus in the mouse, and thus originated a reliable method of isolating the organism from the sputum. In 1913 Dochez and Gillespie [8] classified pneumococci into four groups by means of immune sera. Avery, Chickering, Cole, and Dochez,[9] of the Rockefeller Institute, in 1917 published a monograph concerning the treatment and prevention of lobar pneumonia by means of antipneumococcal serum. Among later important publications may be mentioned a monograph from the Pasteur Institute by Cotoni, Truche, and Mlle. Raphael [10] (1922), and a report to the Medical Research Council by Prof. E. E. Glynn [11] (1923).

The Clinical Material.

The present series consists of 27 cases of lobar pneumonia (Series A) admitted to the hospital during 1923 and 1924, and treated with antipneumococcal serum. For purposes of comparison, the last 27 cases of lobar pneumonia (Series B) admitted to the hospital before the introduction of the serum have been analysed. While this group of cases is not regarded as a completely satisfactory control, the comparison with the serum-treated cases is interesting.

In both Series A and B 21 were males and 6 females. The average age in Series A was 31·7 and in Series B 37·2 years. The majority of cases in both series occurred in the months of March, April, May, and June. In Series A the right lung was affected in 17, the left in 7, and both lungs in 3 cases; in Series B the right lung in 13, the left lung in 11, and both lungs in 3 cases. Of the serum-treated cases 3 died, and of those not treated with serum 7 died. Of the 3 deaths in Series A, 2 were in females. The first patient, who was 16 years of age, was admitted on the fourth day of the illness. Pneumococcus Type 2 was isolated from the sputum. Signs of consolidation were present in both lobes of the left lung; 50 c.cm. of Type 1 serum had been given. She died on the ninth day of the illness. The second, a female of 65 years of age, admitted on the eleventh day of the illness with signs of consolidation in both lungs, died 48 hours after admission. The third, a male aged 32 years, was admitted on the fifth day of the illness. Signs of pneumonia were present over the whole of the left lung and the lower two lobes of the right lung. Pneumococcus Type 1 was isolated from the sputum; 250 c.cm. of Type 1 serum were given intravenously, but the patient died 48 hours after admission. The extent of the pneumonic process was confirmed by autopsy. Of the 7 deaths in Series B all were in males. Two were due to empyema (one interlobar), one was due to right lobar pneumonia complicated by alcoholism, and the remaining three cases died from uncomplicated pneumonia.

It is noteworthy that in three cases of Series B empyema followed the pneumonia, while in Series A no cases of empyema occurred. In one case of pneumonia with Type 1 pneumococcus horse serum in large quantities was given in order to determine whether the bulk of serum injected was responsible for the fall in temperature. This patient developed a pneumococcal empyema.

The Serum Employed.

The therapeutic antipneumococcal serum Type 1, prepared by Burroughs and Wellcome, is used. It has been found by American observers that the results given by the specific sera for Types 2 and 3 and Group 4 are not satisfactory, and that the use of polyvalent sera has not been followed by definitely striking results. On the other hand, in France polyvalent serum has been successfully employed, for instance, by Cotoni, Truche, and Raphael.[10] These workers prepare the serum by inoculating animals with virulent strains of pneumococci regardless of their agglutinating type, which they hold is not correlated with their pathogenic properties. A series of animals is inoculated, each with a different strain, and the resulting sera are mixed.

Method of Typing Pneumococci.

The sputum of each patient on admission to hospital is examined for pneumococci, and the type is determined in the following way. An emulsion is made of the sputum in sterile broth and 0·5 c.cm. is injected into the peritoneal cavity of a mouse. If a virulent pneumococcus is present, the mouse usually dies within 24 hours. The peritoneal exudate is washed out with 2 c.cm. of sterile normal saline, and a thick suspension of organisms obtained. A film of the suspension is stained by Gram's method, and examined microscopically to demonstrate the presence of a Gram-positive diplococcus. The suspension is centrifuged at low speed for one minute in order to eliminate most of the cells. After the cellular elements have been removed the suspension of diplococci is tested for bile-solubility to establish the identity of the pneumococcus. The suspension of pneumococci is titrated by the microscopic method against agglutinating pneumococcal sera Types 1, 2, and 3 (B. W.). Dilutions of 1 in 5 and 1 in 10 are made and incubated at 37° C. for 15 minutes. Agglutination occurs in the corresponding type. If no agglutination takes place, the pneumococcus is considered to belong to Group 4.

Incidence of Types of Pneumococci.

Virulent pneumococci were isolated from the sputum in 24 instances. In two of the remaining cases the injection of sputum failed to kill the mouse, and in the third the properties of the organism were not investigated. Of the 24 cases in which virulent pneumococci were found, 14 were Type 1, 4 were Type 2, and 6 belonged to Group 4. All the Type 1 pneumococci isolated occurred in males. No Type 3 pneumococci were isolated. The predominance of Type 1 pneumococcus in this series is in accordance with the findings of Dochez and Gillespie,[8] who found 35 Type 1 pneumococci in 74 cases.

Routine Treatment.

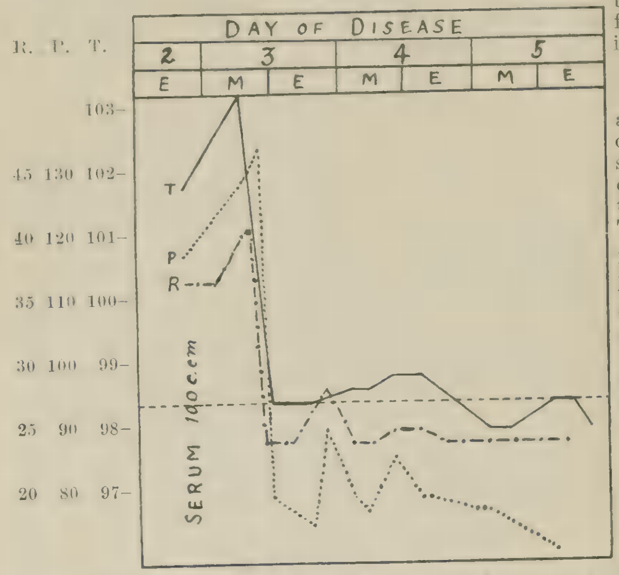
As soon as the patient was admitted to hospital and the diagnosis established, inquiry was made concerning previous injections of serum. When a history of previous injections was obtained, 1 c.cm. of horse serum was injected subcutaneously to determine the presence or absence of protein sensitisation. If no local or general reaction occurred within an hour, 50 to 100 c.cm. of antipneumococcal serum were injected intravenously. This was carried out before the result of the sputum investigation was known. When Type 1 pneumococcus was found in the sputum the injections were repeated every eight hours until the temperature fell to normal and the pulse-rate dropped below 80. If pneumococci belonging to other groups were found, the injections were sometimes continued to observe the effect, but usually they were discontinued. The quantities injected ranged from 50 to 400 c.cm.

The apparatus consisted of two funnels, for serum and normal saline respectively, united by rubber tubing to a Y-shaped glass tube which in turn was attached to the infusion needle by another piece of rubber tubing. The needle was introduced into the vein, and about 5 c.cm. of warm saline allowed to enter the vein, followed by a few drops of serum (warmed to 100° F.) mixed with a further 5 c.cm. of saline. After waiting two or three minutes 5 c.cm. of well-diluted serum were injected, followed by another interval; then 10 c.cm. of diluted serum were run in. If no untoward symptoms occurred after these tentative doses the undiluted serum was then injected slowly. In using this method, recommended by Cruveilhier,[12] no anaphylactic phenomena have been observed. In one case in which the serum had not been diluted symptoms of anaphylaxis occurred during the administration. The symptoms rapidly subsided three minutes after the subcutaneous injection of 1 c.cm. of pituitrin.

Influence on Temperature and Pulse-rate.

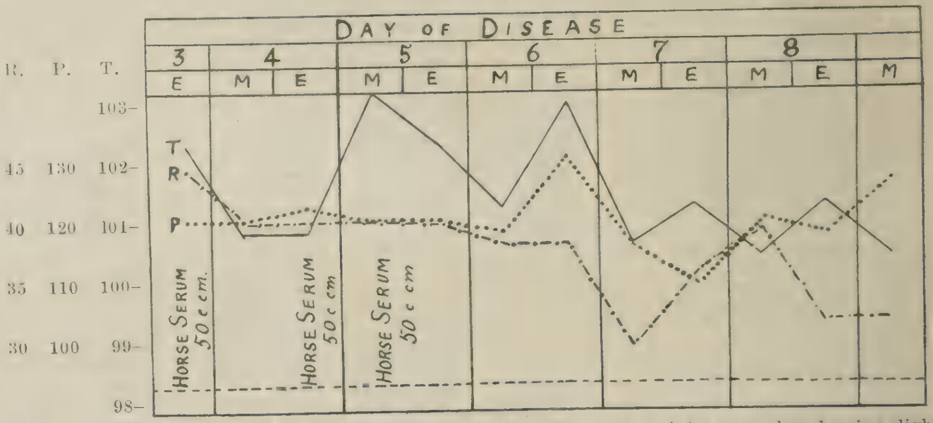
After each injection the temperature fell at least two degrees, and in some cases became normal or subnormal. Concurrently, the pulse-rate and respiration-rate were lowered. As the effect of the previous injection began to wear off the pulse-rate increased, followed by a rise in temperature. Another injection of serum again caused the temperature and pulse-rate to fall. An increasing pulse-rate was taken as an indication that more serum was needed. After the temperature and pulse-rate became normal no more serum was given. In two cases admitted on the second day of the illness an intravenous injection of 100 c.cm. in each case caused an instantaneous drop in the temperature with no secondary rises (see Chart 1). No more serum was required, as the attack appeared to be definitely aborted. Both were definite cases of pneumonia with typical pulse, temperature, respiration ratios, rusty sputum, and the physical signs of commencing consolidation in the lungs. One had well-marked herpes labialis. In these two cases the signs of complete consolidation did not develop. In order to determine whether the fall in temperature was due to the bulk of serum injected one patient was given similar large quantities of horse serum. After each injection the temperature fell about 0·5° but rose again later, and there was no fall in the pulse-rate. As stated above, this patient subsequently developed empyema (see Chart 2).

CHART 1.



L. W., male, aged 24. Acute lobar pneumonia. Intravenous serum, 100 c.cm. on second day of illness.

CHART 2.



W. C., male, aged 18. Acute lobar pneumonia (Type 1). Horse serum intravenously, showing slight fall in temperature after injection, without a corresponding fall in pulse-rate. Developed empyema.

The usual "plateau" type of temperature chart was not seen in the cases of pneumonia treated with serum. An early crisis was usual when large quantities of serum were given at the outset, and with smaller doses a "staircase" descent resulted, each fall corresponding to an injection of serum (see Chart 3). The phenomenon, noted by Lassance,[13] of an "inverse" temperature (the evening reading being lower than the morning temperature) was observed in only one case.

Influence on Physical Signs.

In two cases, as previously stated, where the disease was aborted by large doses of serum on the second day of the illness, the signs of progressive consolidation did not develop. In the cases where the serum treatment was commenced on or after the fourth day of the illness, however, the signs developed in the usual way.

Serum Reactions.

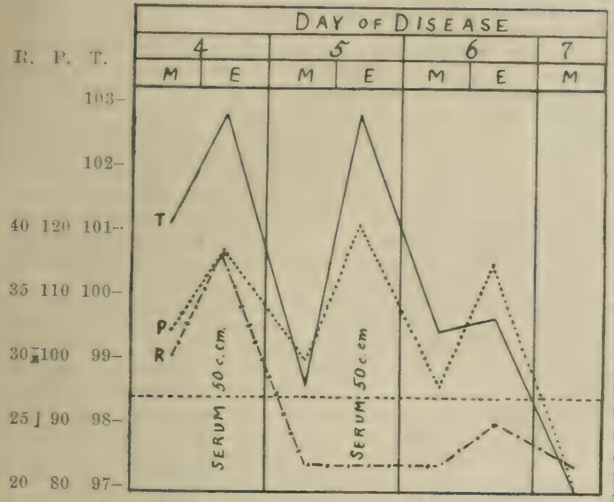
In all patients who recovered a serum reaction appeared, sometimes on the eighth day, more usually on the tenth day after the first administration of serum. In one case it appeared on the sixteenth day, and in another there were two reactions, one on the sixth day and the other on the nineteenth day. The reaction usually consisted of an urticarial rash appearing on the flexor surfaces of the arms and legs, on the chest and abdomen, and occasionally on the face. Joint pains, together with slight rises of temperature, were associated with the urticaria in several instances. Slight hæmorrhage from the bowel, apparently due to an urticarial lesion of the mucous membrane, occurred in one case. The duration of the reactions, modified by injections of pituitrin, varied from two hours to three days. The intense itching of the skin was controlled by a lotion consisting of ac. carbol. ʒi., lot. calaminæ ℥vi.

Evidence of Value of Serum Treatment.

It is well known that lobar pneumonia is a disease in which the prognosis at the outset is uncertain and that many cases recover without any active treatment. The evidence, however, of the value of serum treatment of pneumonia is very strong, especially where the causal organism is the Type 1 pneumococcus. Avery, Chickering, Cole, and Dochez[8] note that the mortality from Type 1 pneumonias before they introduced serum treatment was 25 to 30 per cent.; after the introduction of serum treatment it fell to 7·5 per cent. Nichols,[14] working on the Mexican Border among soldiers found the mortality fall from 39 to 8 per cent. The French observers have noted similar reductions in the case mortality. The fact that the pneumococcus Type 1 is the predominating organism gives a wide range of application to its corresponding serum. The results are better in men than in women, owing probably to the greater incidence in men of Type 1 pneumococcus.

The general impression obtained in treating the comparatively small number of cases in the present series is that the serum is of distinct value. In four desperately ill patients, all admitted before the fourth day of the illness, the effect of the serum was dramatic; one of these cases was complicated by auricular fibrillation but recovered completely. One practically moribund case (not included in the series) of advanced pulmonary tuberculosis complicated by Type 1 pneumonia recovered from the acute attack of pneumonia after 400 c.cm. of serum had been injected intravenously.

CHART 3.



T. W., male, aged 48. Acute lobar pneumonia (Type 1). Showing fall of temperature and pulse after each injection of serum.

Conclusions.

The following general conclusions have been drawn from the results obtained in this series:—

1. The Type 1 antipneumococcal serum has a beneficial effect on pneumonias caused by other types of pneumococci, but not so marked as the effect on Type 1 pneumonias.
2. The best results are obtained when the serum treatment is instituted early in the disease, preferably before the third day.
3. The initial dose of antipneumococcal serum should be 100 c.cm. injected intravenously with the precautions previously mentioned.
4. Serotherapy seems definitely to diminish the incidence of post-pneumonic empyema; in fact, in the present series no such cases occurred. In the case of Type 1 pneumonia, in which horse serum had been injected as a control, empyema developed.

My thanks are due to Dr. W. J. Hadley and Dr. E. H. Colbeck for their suggestions and advice and for permission to publish these notes, and to Dr. S. Roodhouse Gloyne and Dr. D. S. Page, pathologists to the hospital, for carrying out the laboratory investigations and animal inoculations.

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Reviews and Notices of Books.

MODERN MEDICAL MONOGRAPHS.

Edited by HUGH MACLEAN, M.D. Aberd., D.Sc., M.R.C.P. Lond., Professor of Medicine and Associate Examiner in Medicine, University of London: Director of Clinical Medicine Unit, St. Thomas's Hospital. London: Constable and Co. 1924.

1. *Modern Diagnosis and Treatment of Syphilis, Chancroid, and Gonorrhœa.* By L. W. HARRISON, D.S.O., M.B., Ch.B., M.R.C.P.E., Brevet Colonel, R.A.M.C., Director of the Venereal Diseases Department, St. Thomas's Hospital: Special Medical Officer for Venereal Diseases, Ministry of Health. Pp. 167. 10*s.* 6*d.*

THE modern Medical Monographs Series has for its object to provide the general practitioner with a short and concise up-to-date account of the position of various subjects of medical interest. This object has been very successfully achieved by Colonel Harrison in this book. It gives a lucid and concise account of syphilis, chancroid, and gonorrhœa in all their manifestations, and with the sections on diagnosis and treatment no fault can be found. While Colonel Harrison has refrained from discussing doubtful points and makes it clear that the views put forward are those of his own school of thought, the book gives no dogmatic impression. To the busy practitioner who cannot overtake the modern literature it should be very useful.

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2. *Modern Views on the Toxæmias of Pregnancy.* By O. L. V. DE WESSELOW, M.B. Oxon., F.R.C.P., Chemical Pathologist, St. Thomas's Hospital; and J. M. WYATT, M.B. Lond., F.R.C.P., Obstetric Physician in charge of Out-patients at the Hospital. Pp. 99. 7*s.* 6*d.*

THE position taken up by the authors of this volume seems to be substantially as follows. A pregnant woman has albuminuria. If blood and casts are also present in the urine, and she is vomiting, the case is one of "pernicious vomiting," and pregnancy must be terminated. If the albuminuria is accompanied by œdema, the case is either (*a*) "pre-eclampsia," in which case the blood pressure will be high and the nitrogenous constituents of the blood normal, or (*b*) "nephritic toxæmia," which is merely an old nephritis lit up by pregnancy, and hence will show nitrogen retention in the blood and a blood pressure either normal or raised and accompanied by cardiac hypertrophy. Albuminuria without vomiting or œdema is mysterious but unimportant.

If this is not a correct summary of the authors' views we must conclude that it is not easy for a reader of normal intelligence to grasp what they do mean, for we have studied the monograph with the attention due to any work published by Dr. de Wesselow and his colleague. If it is a true summary this monograph fails to fulfil the object outlined by Prof. MacLean, who says in his general introduction: "By reading one of these volumes dealing with a particular problem that interests him, the medical man will know what the present position is." For example, it is misleading to omit to state that there is an important and world-wide body of opinion which holds that the so-called cases of "pernicious" vomiting are nearly all hysterical and are therefore amenable to treatment by suggestion. We feel that the authors are themselves uneasy on this point, for why otherwise do they give full details (pp. 35 and 36) of a scheme of treatment which they then admit to be useless if their diagnosis is correct, and why do they mention urinary changes which have never been considered characteristic of this disease? We feel that it is quite unsafe to label as pre-eclampsia a group of cases which the authors know will in the majority of instances and under any treatment never exhibit a symptom which an obstetrician of 20 years ago would have classified as eclamptic. It is mischievous, because it encourages obstetricians to publish fantastic statistics purporting to show the results of a "prophylactic" treatment of eclampsia, while it tends to lull into complacency medical men who might otherwise be seeking a remedy for this dreadful complication of pregnancy. And, finally, we hold that, if the group which the authors label "nephritic toxæmia" is, as they believe, "merely the expression of the deleterious effect of pregnancy upon a previously existing renal lesion," they have done a disservice to medicine by endeavouring to introduce a new title for the condition.

The names of many authorities are quoted in the book, but no references and no bibliography are given; it is therefore of little value to the specialist. Mistakes such as the classification of raised blood pressure and urinary changes as symptoms, and the incorrect drawing of the graph on p. 50, are details of minor importance. But our deep appreciation of the valuable contributions to our knowledge concerning the chemistry of the blood which have been made in the past by Dr. de Wesselow make us regret the defects of this monograph.

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3. *Modern Methods in the Diagnosis and Treatment of Pulmonary Tuberculosis.* By R. C. WINGFIELD, M.B., M.R.C.P., Medical Superintendent, Brompton Hospital Sanatorium, Frimley. Pp. 134. 10*s.* 6*d.*

THIS book, like its companion volumes, does not profess to go deeply into the subject, its main object being to give the general practitioner and senior medical student a summary of the most essential aspects of pulmonary tuberculosis. For this reason we do not find the opsonic index mentioned, which is good, but we also find no word about the rate of sedimentation of the erythrocytes, which is a pity. For, though comparatively new, this simple test is generally recognised by continental workers as an invaluable aid to diagnosis, treatment, and prognosis. It is not a test which every general practitioner will carry out, but it is one about which he should know, if it be only to gauge the competency of the consultant, whose advice he seeks, to give the patient the benefits of the most important among the modern advances in medicine. Some of the author's notes on physical examination show him to be an able and experienced clinician, and the following point is one which is as important as it is rare in text-books. "Pay more attention to the healthy than to the diseased areas of the lung. The older the lesion, the more difficult does the correct interpretation of its physical signs become. But the appearance of these in previously apparently normal lung can be taken as evidence of spread of disease." The Brompton tradition is much in evidence. Mouth temperatures, we are told, are as reliable as rectal temperatures; a quarter of a grain of morphine hypodermically is recommended for hæmoptysis and, when the crisis is past, a heavy dose of bromide. The patient is also to be kept on "strict, absolute rest for the next few days." All of which may have support, but it is diametrically opposed to the teaching of other schools, according to which the chief danger of hæmoptysis, except when the loss of blood itself threatens life, is the stagnation of effused blood in the lungs. It is, of course, impossible in a work on pulmonary tuberculosis to please everyone, or, indeed, to please more than a minority, so widely divergent are opinions on the best diagnostic and therapeutic measures. The author has the courage of his convictions and many years of valuable clinical experience in institutions devoted solely to the tuberculous, and however much his fellow-specialists may differ from him, none can deny his competency to speak with authority.

THE STEINACH OPERATION.

The Theory and Practice of the Steinach Operation. By Dr. PETER SCHMIDT. London: William Heinemann (Medical Books), Ltd. 1924. Pp. 150. 7*s.* 6*d.*

THIS book, as well as containing an account of the experimental work upon which Steinach's operation is based, furnishes a report on 100 cases treated by the author. In these reports he has wisely published all the clinical data at his command, obtained from the whole of the patients operated upon, including cases in which no very definite results were obtained as well as those in which the operation appeared to have been highly beneficial. In Dr. Schmidt's opinion the best site for ligature of the vas is near the point of junction with the epididymis. In this he differs from some other authorities who consider a partial epididymectomy to be a preferable proceeding to a vasotomy. After a survey of the clinical reports published in this book it is difficult to maintain an attitude of incredulity towards the results of the operation of vaso-ligature. Even taking into account the effect of suggestion and the possibility of an improvement in general health due to other factors, the changes effected in some of the author's patients appear to have been so striking that one is almost bound to accept the view that they were the result of the operation. The greatest successes appear to have been gained with what may be described in broad terms as cases of premature old age, either partial or total; but apart from these, even such a condition as arteriosclerosis would appear to have been ameliorated. Where, however, the blood pressure is high the author considers it advisable to bring about a preliminary reduction by means of drugs and then to operate, at first, on one side only. If after a lapse of months this should prove insufficient the opposite vas may be ligated. No harmful results have ever been noted by the author, and as a corroboration of this he quotes the experience of Laughlin, in the United States, who after carrying out 2000 vaso-ligations for sterilisation purposes, states that the operation "can cause no harm of any kind to body or mind."

When discussing the theory on which the operation is based Dr. Schmidt shows himself to be an ardent partisan of Steinach's view that the interstitial cells are responsible for the internal secretion of the testis. In the first chapter of his book he furnishes a general critical survey of the experimental work on which this theory is based and does his best to demolish the views of the opposing school who regard the interstitial cells as trophic. It must be remembered, however, that whether this view of the interstitial cells is or is not correct, the work of Steinach still remains, although in the latter case it will be necessary to modify some of his deductions.

This book is one of the best scientific expositions of the subject available for British readers. The large amount of clinical material that it contains should prove of interest to all who are prepared to adopt an unprejudiced attitude towards its subject-matter.

ELEKTROTHERAPIE.

Second edition. By Dr. JOSEF KOWARSCHIK, Primararzt and Director of the Department for Physiotherapy of the Kaiser-Jubiläums-Spital, Vienna. Berlin: Julius Springer. Pp. 312.

THIS text-book on electro-therapeutics is divided into four parts. The first, which is quite short (11 pages), contains definitions and explanations of certain physical terms and units commonly used in medical electricity. Part II. contains 116 pages and is divided into five sections. These deal with the constant current, alternating currents of low frequency and high frequency, diathermy currents, and the various currents from the static machine. The source, production, measurement, and modes of application of these currents are described in separate sections In the third part (71 pages) the author describes the effects caused by the passage of these currents through electrolytes and the human body. The theory of ions is explained, and the migration of ions and the movements of colloids and particles in suspension under the influence of the electric current are described. An account is given of the physiological action of the various currents on motor, sensory, and sympathetic nerves, on the central nervous system, on sense organs and the circulation, and on metabolism. The third part concludes with a section on electro-diagnosis. The fourth part (106 pages) deals with disease and its treatment by electrical methods. The general therapeutic properties of the different currents are described in the first section of this part. In the following 11 sections the diseases suitable for electrical treatment are reviewed, each system of the body being considered in a separate section.

The book is a useful introduction to the principles and practice of medical electricity. The author rightly devotes much space to a consideration of the action of electricity on the body in health, for a knowledge of the physiological effects brought about by electrical currents not only enables us to apply electricity intelligently, but also indicates the lines along which investigation can be most hopefully conducted. Dr. Kowarschik discusses the vexed question of the method of action of the galvanic current when used to treat disease of parts lying beyond the range of entry of ions introduced from the exterior. He acknowledges that the current can generate heat in the tissues, but maintains that the heat is too slight to have any therapeutic value. He thinks the power of the current to cause movement of colloidal particles plays some part, not yet known, in the treatment of disease, although these particles cannot be made to migrate through animal membranes. The therapeutic value of the sinusoidal current is not sufficiently emphasised. The author appears to be cautious in the recommendation of these currents, perhaps in view of fatal results which have followed the application in full-length baths in certain parts of Germany. Static electricity is very briefly considered, and the author does not think much of its therapeutic value. It must be mentioned, however, that the machine installed in his department is extremely small.

The work can be recommended. A noteworthy feature is the number of clear and helpful diagrams.

ELEMENTS OF WATER BACTERIOLOGY.

Fourth edition. By S. C. PRESCOTT, Professor of Industrial Microbiology in the Massachusetts Institute of Technology; and C-E. A. WINSLOW, Professor of Public Health in the Yale School of Medicine. London: Chapman and Hall; New York: John Wiley and Sons, Inc. 1924. Pp. 211. 11*s.* 6*d.*

THIS sound and admirably balanced monograph on Water Bacteriology is now in its twentieth year and, for the present edition, has been largely rewritten. In spite of its long enduring popularity the book is still of a size not beyond the compass of the D.P.H. student, and not too bulky to give the beginner in water examinations an excellent review of the whole subject within a reasonable space of time. A certain number of errors have crept into this edition. For example, Houston's table, quoted on p. 19, lacks column headings, and is, in its present form, absolutely meaningless, and the table on p. 36 is out of place and should be between pages 26 and 27 to which it has reference. The characters of the organisms of the typhoid-colon group, as stated on p. 56, are somewhat inaccurate; *B. lactis aerogenes*, *B. acidi lactici*, and *B. dysenteriæ* (Flexner) all being shown as fermenting dulcitol, which none of them do, and *B. dysenteriæ* (Shiga) being shown as turning milk alkaline, which is a property of an allied and often confused organism which Andrewes has called *B. ambiguus*. In connexion with the differentiation of the coli and aerogenes groups by sugar reactions, the methyl-red and the carbinol tests, there are several contradictions on pp. 57–59. It is a pity that such inaccuracies have been permitted to occur, since the book is one likely to be read as a dogmatic guidance to salvation by the beginner in water bacteriology, rather than as a contribution to the subject from authors of great experience for those whose life's occupation lies in this type of work. But the beginner should read it with much profit, if he carries away with him nothing more than the recognition that "In sanitary water examination . . . the factors involved are so complex, and the evidence necessarily so indirect, that the process of reasoning much more resembles a doctor's diagnosis than an engineering test."

ANNALS OF MEDICAL HISTORY.

Vol. VI. No. 2. June, 1924. Philadelphia: Paul B. Hoeber. $2.50.

THE principal articles in this number are biographical—namely, papers upon Sir William Bowman, Carl Weigert, Spallanzani, and Sir William Buttes, who was physician to Henry VIII. We think that the author of this paper, Dr. T. N. Toomey, is in error when he translates the commencement of Henry VIII.'s grant to Buttes by the words, "King by all, &c.," for though he only gives the two first words of the preamble—namely, "Rex omnibus, &c.," the beginning was probably "Rex omnibus ad quos presentes litere pervenerint. . . ." Also, in the last line of Buttes's epitaph Dr. Toomey transcribes "Mors mihi nunc lucum vitaque Christus erit," and translates, "Now that I am dead, Christ will be to me refreshment and life"; it is surely obvious that "lucum" should read "lucrum," and equally obvious that the line is simply a poetical rendering of St. Paul's remark (Phil. i. 21) as given in the Vulgate, "Mihi enim vivere Christus est, et mori lucrum." Apart from these little oversights the paper is good, and Dr. Toomey has been at much trouble to consult original sources of information. Dr. Francis Packard, the editor, gives his readers an interesting paper upon References to Venereal Diseases, in which, with the art of a practised writer, he arrests attention at the outset by a quotation which has nothing to do with syphilis. The best paper in the number, however, is that by Dr. John Ruhrah, entitled James Atkinson and his Medical Bibliography, a scarce and amusing book and a great favourite of Osler. We share Dr. Ruhrah's wonder that it has never been reprinted, but are sincerely grateful to him for having given us a generous number of quotations from it. Bibliography pure and simple is an arid form of literature; as annotated by such men as Atkinson it is most stimulating.

BRITISH WINES AND CORDIALS.

THE Ministry of Health has recently published No. 24 of its "Reports on Public Health and Medical Subjects" (1*s.* 6*d.*), dealing with the composition of commoner British wines and cordials (alcoholic and non-alcoholic). Dr. G. C. Hancock, one of the Ministry's medical officers, is responsible for Part I., which deals with the historical and technical side of the industry, while the much larger Part II., contributed by the Government Chemist, consists of a classified summary of the results of the analyses of some 360 samples. The composition of these beverages formed the subject of a special inquiry by the Local Government Board, which was begun in 1913, but owing to interruption by the war it has only just been completed.

Many of these beverages, although not specifically described as temperance drinks, are not uncommonly regarded as such, and, roughly speaking, they may be divided into two classes—namely, those which contain alcohol and those which really are temperance drinks. Strictly speaking, the term "wine" should be applied only to the former, since wine in its broadest sense is the fermented expressed juice of any fruit, though the term is generally understood to apply to the juice of the grape. The term "British wine" has, however, been applied to a number of beverages manufactured in the British Isles, some of which contain alcohol produced in part by the fermentation of fresh and dried fruits, whilst others consist for the most part of sugar solutions flavoured with fruit juices, fruit essences, and other flavouring agents, and contain no alcohol or only an amount not exceeding 2 per cent. of proof spirit, as permitted by the Excise authorities. Fermented wines are usually sold without any special indication that they contain alcohol, but temperance drinks are almost invariably described as "non-alcoholic," "non-excisable," or "unfermented." The yearly consumption of British wines and cordials is difficult to estimate. The annual output of fermented British wines probably does not exceed 2 million gallons. The manufacturers of these wines, with few exceptions, use preservatives in some form, those most commonly used in fermented beverages being sulphurous acid and sulphites. Salicylic acid, although the most favoured preservative for temperance wines and cordials, does not appear to be extensively used in alcoholic beverages. For the sake of convenience, the preservatives and alcoholic content of both unfermented and fermented wines have been tabulated, and the analyses are shown in the following table :—

—	Samples of—	
	Fermented British wines.	British unfermented wines and cordials.
Preservatives . .	Nearly all contained some.	Very commonly added; salicylic or sulphites either alone or together are the most general. Neither beta-naphthol nor formaldehyde found.
Sulphurous acid and sulphites.	14 % contained over 1·8 gr. per pint. 18·6 % contained 0·9 to 1·8 gr. per pint. Maximum (orange wine) 3·78 gr.	Present in traces in nearly all. In 29 samples it exceeded 0·9 gr. per pint; in 5, 1·8 gr. Maximum 3·52 gr. per pint.
Salicylic acid . .	Not extensively used; 10 % contained amounts varying from 0·25 to 1·57 gr. per pint.	50 % contained from a trace to 11·9 gr. per pint.
Boric acid . .	5 % contained from 1·38 to 2·98 gr. per pint.	Present in 18 samples, ranging from 1 to 14·3 gr. per pint, and in all but 4 cases in addition to salicylic or sulphurous acids.
Benzoic acid . .	—	Found in 2 samples: 4·7 and 10·6 gr. per pint.
Proof spirit . .	May contain from 14·8 to 28 %. Ginger wine from 10·9 to 27 %.	Usually under 2 %, but 2 samples contained 23 %, though marked "non-alcoholic."
Saccharin . .	—	Found in 10 out of 44 samples of wine, and in 7 out of 98 samples of cordials. The amounts ranged from a trace to 4·6 gr. per pint.

Alcohol, either in the form of grain or wine spirit, is an ingredient occasionally added to fermented wines, but its use for the most part appears to be limited to certain manufacturers of ginger wine who export to the British colonies. British fermented wines may contain from 20–28 per cent. of proof spirit and therefore do not need to be fortified. Of the vegetable acids, tartaric and citric are sometimes added, usually before fermentation or in the preparation of the syrup.

Unfermented British wines are sold under similar names to those given to fermented wines but in larger variety. They are manufactured in much the same way and contain similar ingredients, the chief difference between a wine and a cordial being the density of the syrup which forms the basis of both; in the case of wines, the syrup usually contains from 1·5 to 3 lb. of sugar to the gallon, while in cordials it runs from 3 to 6 lb. to the gallon.

In addition to its sweetening power, some manufacturers are aware of the antiseptic value of saccharin, and, since for equal sweetening power, this substance is in normal times about half the price of sugar, advantage in a commercial sense is effected by its use. The use of artificial colouring matter is practised to a greater degree in the colouring of temperance drinks than in the colouring of alcoholic drinks, and 30 per cent. of the samples analysed by the Government chemist were found to contain coal-tar (aniline dyes) in very minute amounts. As regards the use of saccharin, it should, of course, be remembered that this substance has no relation chemically to sugar and is not a food, and its use in food is prohibited in the United States save in respect of certain drugs and classified foods containing this substance which may be required for the mitigation or cure of disease (Food Decision No. 142, United States Department of Agriculture). Its use in British wines and cordials has been shown to be limited for the most part to some of the non-alcoholic wines and cordials. This statement does not apply to the manufacture of sweet mineral waters in which saccharin appears to be much more commonly employed. Most manufacturers are, however, able to do without saccharin, and it is clearly not necessary in the preparation of these beverages. An expert American committee who reported on the use of saccharin summarised their conclusions as follows: (1) Saccharin in small quantities (4·6 gr. per day or less) added to food is without deleterious or poisonous action, (2) in larger quantities (over 4·6 gr. per day and especially above 15·5 gr. daily) if taken for considerable periods of time, especially after months, is liable to induce disturbances of digestion.

Coming now to the use of salicylic acid, which is the most commonly employed preserving agent in temperance drinks, the author states it is a powerful drug, and, like sulphurous acid, has the quality of inhibiting especially the growth of moulds and those organisms which cause fermentation in fruit preparations. Williams and Starling have found that it retards gastric digestion but has practically no effect on pancreatic juices; on the heart it exercises a depressing effect. Within recent years feeding experiments with this preservative on human beings have been conducted by the U.S. Bureau of Chemistry (Bulletin No. 84, Part 2, 758–9). The conclusions which were drawn from the study of the clinical and medical history of the men under observation are summarised as follows :—

> "The final conclusion in this matter is that the unenviable position which salicylic acid has heretofore held among preservatives, in being regarded as the most injurious of all, is to a certain extent undeserved. Like other ordinary preservatives, it is not one which can be classed as a poison in the usual sense of the word. When used as a medicine in many cases of derangement of health it is, like the other chemical preservatives, often highly beneficial when properly prescribed by a competent physician. It is when used in the food at first an apparent stimulant, increasing the absorption and solubility of the common food elements from the alimentary canal. It soon, however, loses its stimulating properties and becomes a depressant, tending to break down the tissues of the body more rapidly than they are built up. It disturbs the metabolic processes, in most cases producing conditions which are not normal and which, apparently, are not beneficial. It has a tendency to diminish the weight of the body and to produce a feeling of discomfort and 'malaise,' which, while not marked, is distinctly indicative of injury. In some cases these symptoms of 'malaise' approach illness, and, while not always diagnostic, are sufficiently common to point unmistakably to the salicylic acid as their origin. It places upon the excretory organs, especially the kidneys, an additional burden which they are not able to bear, and which cannot possibly result in any good, but, on the contrary, must necessarily finally result in injury, though perhaps with the use of very small quantities of the preservative these organs would continue to perform their function for many years before finally breaking down."

The Departmental Committee, appointed in 1899 to inquire into the use of preservatives and colouring matters in food, recommended that the quantity of salicylic acid permissible in liquids should not exceed 1 gr. per pint. Of the temperance wines and cordials examined by the Government Chemist 50 per cent. contained salicylic acid. The table below shows the number of samples which exceeded the 1 gr. limit recommended by the Departmental Committee.

Salicylic acid.			No. of samples.
Exceeding 1 gr. but not exceeding 3 gr.		..	28
,, 3 gr. ,, ,, 7 gr.		..	21
,, 7 gr. ,, ,, 12 gr.		..	9
Total	..	..	58

As the question of preservatives and colouring matters in foods is again under consideration by a Departmental Committee appointed by the Minister, Dr. Hancock states that he has refrained from making any specific recommendations in the matter.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XVIII.—LIBEL AND SLANDER.

BY HUGH WOODS, M.D.,
GENERAL SECRETARY, LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

> "Where it concerns himself, who's angry at a slander makes it true."—BEN JONSON, *Catiline*, Act III., Scene i.

EVERY medical practitioner ought to have a sound elementary knowledge of the law of libel and slander, for not only is he, by the nature of his profession, much exposed to libel and slander and very liable to serious damage from them, but he also runs serious risk, in the course of his professional duties, of himself libelling or slandering others, or of giving opportunities for accusations and claims for damages against him on the ground of alleged libel or slander. Before discussing the subject in its special reference to medical practice, I will therefore briefly set out a few elementary principles with which every practitioner ought to be familiar.

Elementary Principles.

Defamatory Words.—Words which produce, in any given case, appreciable injury to the reputation of another are called defamatory, and defamatory words, if false, are actionable. False defamatory words, if written and published, constitute a libel; if spoken, a slander. False words which by their nature evidently must damage the reputation are actionable without proof that any particular damage has followed, otherwise it must be proved that some appreciable injury has in fact followed from the words spoken or written. Such evidence of "special damage" is not required when the words complained of were spoken of the plaintiff in the way of his profession or trade or an office of public trust, as it is assumed that disparaging words will under these circumstances cause injury even if specific instances of damage are not in evidence. In order to judge whether certain words are defamatory or not it must be considered whether the nature of the words is such that it must be presumed that they would seriously injure the reputation of the person referred to as being disparaging or tending to bring into ridicule and contempt, when written; or when spoken, as charging with the commission of a crime, with having a contagious disorder, with unchastity or adultery in the case of a woman, or as disparaging the person in his or her trade or profession. When it cannot be presumed that the words must cause appreciable injury it is necessary to prove that they have in fact produced injury to the patient's reputation. The presumption that words are defamatory arises much more readily in cases of libel than in cases of slander, since for several reasons they are more likely to cause injury when written than when merely spoken.

Malice.—It is not necessary to prove that there was any wrong intention or motive in the use of defamatory words unless the words are privileged by reason of the occasion on which they were employed. Words, if false and defamatory, are actionable (when not privileged) even though published with an honest belief in their truth or accidentally or inadvertently. Absence of malice may, however, be pleaded in mitigation of damages. When the judge has ruled that the occasion was privileged in an action for defamation, the plaintiff has to prove malice. The question whether there was malice or not is for the jury, unless the judge rules that there is no evidence of malice to go to the jury. Malice in law is any indirect motive other than a sense of duty, and not only feeling against the plaintiff. If malice is proved, the privilege attaching to the occasion, unless it be absolute, is lost. The fact that the defendant at the time of the publication of the defamatory words knew that they were false is clear evidence of malice, but even if the defendant honestly believed in the truth of what he said, and was acting under a sense of duty on a privileged occasion, still the words used and the manner and mode of their publication may afford evidence of malice. Where the language used is much too violent for the occasion and circumstances to which it is applied, or utterly beyond and disproportionate to the facts, or where improper motives are unnecessarily imputed, there is evidence of malice to go to the jury.

Privileged Occasions.—An occasion is privileged when the circumstances under which defamatory words were written, or spoken, were such as to make it right that the writer or speaker should honestly state what he honestly believes of the character of another, and to speak his mind fully and freely about him. Privileged occasions are of two kinds: those absolutely privileged, and those in which the privilege is qualified. Privilege is absolute in the case of words spoken by a judge on the bench, by a witness in the witness-box, words spoken in Parliament, &c., and even if the words were spoken falsely, knowingly, and with express malice, they are not actionable. Where the interests of the public do not demand that the speaker should be freed from all responsibility, the privilege is qualified, and not absolute, and damages can be recovered in spite of privilege if it can be proved that the words were not used in good faith, but that the privileged occasion was made use of for the purpose of wilfully and knowingly defaming another. It is for the judge alone to decide whether or not a communication is, or is not, privileged by reason of the occasion. If the occasion is absolutely privileged judgment will at once be given for the defendant. If the judge decides that the occasion is one of qualified privilege only, and the plaintiff puts forward any evidence of malice sufficient to go to the jury, it is then a question for the jury whether or not the defendant was actuated by malicious motives in writing or speaking the defamatory words, and if the jury find that he was so actuated the protection of privilege is lost.

Publication.—Publication is the communication of the defamatory words to some person or persons other than the person defamed. In civil proceedings communication of the words to the person defamed only is not publication. It cannot damage his reputation. When the words are such as obviously would provoke to a breach of the peace, criminal proceedings can be successfully taken when they are communicated only to the person defamed, provided the words are written and not merely spoken. Criminal proceedings cannot be taken for slander.

Justification.—It is a complete defence to any action for libel or slander if the truth of the defamatory words, on which the action is founded, is proved. In a criminal trial for libel this defence is not sufficient. The defendant must, however, prove that the words used were true in substance and in fact, and not merely that they were partly true. The onus of proving that the defamatory words were true rests on the defendant, and, failing such proof, they are assumed to be false. If the jury find that the words were true in substance and in fact they must find for the defendant, even though the words were used maliciously; if they find that the words were false they must find for the plaintiff, even though the defendant in their opinion honestly and reasonably believed that the words were true when he uttered them.

Medical Practitioner as Plaintiff.

To have and to maintain good reputation is a matter of very serious concern to medical practitioners, and they ought to give thoughtful and careful attention to the best means of protecting it against those who wantonly or wickedly seek to detract from it. Doctors are a frequent subject of gossip, but, when it tends to damage them, they should remember that it is not always defamatory, and that they often derive substantial benefit from it. Ordinary foolish gossip should be altogether ignored, even though it be irritating and unfair, since by dealing with it seriously as a slander, wide publicity may be given to it, and people may even be led to infer that it is founded on some substantial basis when it is nothing more than mere irresponsible chatter.

Spiteful persons frequently write letters to medical practitioners accusing them of incompetence, malpraxis, negligence, or unprofessional conduct, when they are annoyed by being pressed for payment of fees due for medical attendance, by refusal of untrue certificates in support of unjustified claims, by reprimands for recklessly giving unnecessary trouble, or by the expression of opinions with which they disagree or which are distasteful to them. A medical practitioner, on receipt of such a letter, sometimes answers angrily, demanding withdrawal and apology, with threats of legal proceedings. As there has been no publication of the libel, the writer can safely, and often does, reply reiterating his accusations and adding to them. When the practitioner proceeds to carry out his threats he learns to his disgust that he has no grounds for action, and that he has simply given the writer the gratification of knowing that his words have caused the annoyance they were intended to cause. Such letters should either be treated with silent contempt, or the writer should be told that his accusations are unfounded and that any publication of them to others will be appropriately dealt with. When letters of the kind are written by relatives of deceased patients, distressed by their loss, and unreasonably blaming the doctor for his lack of success in his treatment, they should be answered firmly but sympathetically, and the unreasonableness of the accusations should be explained in a kindly spirit. In this way honest but foolish fancies can often be quite satisfactorily dispelled.

Medical practitioners should, if possible, avoid bringing actions for libel or slander. They often give world-wide publicity to false charges which would not otherwise have reached more than very few, and would have received little credence. It is very unwise to bring such actions when there is risk of failure owing to technical difficulties, apart from the truth or falsehood of the defamatory statements. People will often overlook the real reasons for the failure of an action, and regard it as a justification of the libel or slander complained of. The occasions on which doctors are libelled or slandered are very frequently more or less privileged, and proof of legal malice presents many pitfalls. Practitioners who are medical officers to public bodies, or panel doctors, are very liable to false charges made to the authorities whose duty it is to investigate such charges, and in these cases there is seldom clear enough evidence of malice to deprive the complainant of the protection of privilege. Members of boards of guardians, of local councils, &c., often make slanderous statements about medical officers, which are reported in newspapers. The slanderers, and the newspapers giving a correct report of their remarks, can plead privilege, but a newspaper which publishes the defamatory statements must, if requested, publish a denial of the defamatory statements, or it will render itself responsible for them. Such public contradiction is often the only remedy open to the practitioner who has been unjustly accused.

When a really grave libel on a medical practitioner is openly published it should be promptly dealt with, and failing an unreserved withdrawal and apology with publicity equal to that of the libel, legal proceedings should be taken, and full public vindication established. Unfortunately, the originators of intolerable libels or slanders are, more often than not, impecunious, and careless what damages may be awarded against them because the plaintiff cannot take from them what they do not possess. In such cases it may nevertheless be necessary to take legal proceedings so as to obtain an injunction restraining the defendant from continuing to publish the libels or slanders, and a disregard of the injunction can then be punished by imprisonment. Occasionally a medical practitioner receives a letter which constitutes a criminal libel although not published to others than himself—for instance, one accusing him falsely of criminally inducing abortion. In such a case he should not shrink from prosecuting, bearing in mind that an unfavourable construction might be put upon his inaction if subsequently he should be prosecuted for the alleged offence.

Medical Practitioner as Defendant.

A statement that a person is suffering from disease is often defamatory, and as the most talented practitioner is liable to error in diagnosis it may be false. The result of a statement by a doctor that a patient is suffering from tuberculosis or cancer may lead to his being dismissed from his employment if made to a third person, and the doctor may be liable for the damage resulting to the patient. Medical certificates should therefore be given to the patient himself and not to an employer, or friendly society, without the express authority of the patient. To talk about the ailments of patients to others is, of course, wrong and dangerous, and should be strictly avoided. Even though the protection of privilege may be available in the case of medical certificates or reports to employers or friendly societies, or the like, there is still a certain amount of risk which it is discreet to avoid. If the truth of the statements made can be proved no damages can be recovered, but legal proof that a person is suffering from a particular disease is often extremely difficult, even when the diagnosis is in fact quite accurate. When there is a statutory duty to report that a patient is suffering from an infectious or other disease, it is sufficient to prove that proper care was taken in arriving at a diagnosis and that it was honestly stated according to the best of the practitioner's knowledge and belief. When a doctor violates the recognised rule of professional secrecy, and fails to prove the truth of damaging statements made by him about a patient, vindictive damages are not unlikely to be awarded against him.

Libel or slander of a fellow practitioner is suspected much more often than it occurs, but it is unfortunately not unknown. Alleged slander of doctors by doctors usually turns out on inquiry to have arisen from false reports by patients of what has been said to them, or sometimes from deliberately false statements by them. When a medical practitioner disagrees with the advice or treatment of another, he should weigh his words carefully, and not attribute ignorance, incompetence, or malpraxis to a doctor who has honestly formed a different opinion, even if he has been quite wrong in his views or his treatment. It may be his duty to express definite disapproval of the advice or treatment given, but, without clear proof, he ought not to attribute negligence, want of skill, or wrong doing to a patient's previous medical adviser, and still less to make unfair or captious criticisms.

THE LANCET.

LONDON: SATURDAY, OCTOBER 4, 1924.

THE PRINCIPLES OF SUCCESS IN MEDICINE.

DURING the past week addresses have been delivered at the opening of the winter session in many of the London schools of medicine. The introductory habit appears to be nearly confined to London, for most of the large provincial schools plunge straight into their work without beginning to commence, and the stimulating address is not appropriate to North Britain, where the temperament of the medical student needs no stimulus in order to count on success. The addresses have in some cases been delivered by past members of the school whose success in one of the manifold fields of medical endeavour is rightly used as a spur to those just starting on their course. In other cases the school has invited an outsider whom wide experience has entitled to speak worthily on medical aims. All the addresses which we reproduce in abridged form in this issue of THE LANCET put into other words the message of the Apostle to the Gentiles, to keep in mind whatever is true, whatever is worthy, whatever is just, whatever is pure, whatever is attractive: advice which contains the germ of psychotherapy no doubt prompted by the medical companion of his journeyings. Success, in the mouths of the several speakers, implied many different things; personal and professional in the first instance, overflowing into communal and social channels and even affecting the welfare of the race. Sir ISAMBARD OWEN exhorted his hearers to work for a real science of therapeutics based upon exact observation, an aim in the pursuit of which he had given some of the busiest years of his life. Dr. CHARLES PORTER'S message to his hearers is epitomised in the transposition of a word in the title of his address; asked to speak on "Some Aspects of Preventive Medicine" he chose to speak on "Some Preventive Aspects of Medicine," in order to impress on his hearers the view that preventive medicine is not a subject for specialists, but for every man and woman entering upon the practice of medicine. His address might have been directed to refute Mr. BELLOC'S gibe at hygiene in our happier age—"for now we know both how to make them sick and keep them so." Sir HUMPHRY ROLLESTON, in handing awards to prize-winners, was careful to point out how the student who matures slowly may eventually excel his prize-winning contemporary of hospital days. Some ambition and much patience would go far to supplement the moderate degree of ability required for those who set out to attempt consulting practice. Mr. H. J. WARING spoke of the organisation of medical practice, giving as his conviction that under a proper grouping it would be right and possible to hand over to the medical profession the whole responsibility for the health of the people. The medical man, he was satisfied, could play a larger part than he was now playing in public affairs, imperial and local. Sir DAVID FERRIER, whose brilliant deductions were largely responsible for opening the sealed book of brain localisation, nevertheless pleaded that with all the increased diagnostic facilities with which scientific method had now endowed us, there should be no atrophy of the trained faculty of the skilled practitioner, no disuse of the unaided tactus eruditus. The factor of success surpassing all others in importance is, as he expressed it, a thorough knowledge of work, and all those who have followed the steps by which the speaker attained to certainty will admit his right to speak on this theme. To those who may be inclined to doubt whether the special direction of medicine that interests them is likely to bring success in its train we commend a consideration of the letter in our correspondence columns signed by one who conceals over an unjust pseudonym much experience in the Services. Two now famous directors-general started their careers as bacteriologists, and it is impossible to forecast from what branch of medical study will be chosen the administrator of 30 years hence. The message of other opening addresses not noticed in this brief summary was addressed to the needs and interests of the particular student rather than to a wider circle, but we must not overlook the remark of the Dean of the Middlesex Hospital in speaking of the great part played by that hospital in bringing home to the people of London the importance of the scientific side of medical work. At the London School of Medicine for Women the Dean's address was of a domestic character in view of the jubilee celebration to take place towards the end of the present month.

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HEALTH LEGISLATION IN PROSPECT AND RETROSPECT.

NEITHER the present short session nor the coming autumn session of Parliament, likely to be occupied with high affairs of State, may be able to devote much attention to health measures, but there are several Bills on these domestic topics sufficiently mature to be ready to pass into law. The House of Lords has already approved the Therapeutic Substances Bill for regulating the manufacture, sale, and importation of vaccines, sera, and other substances, including salvarsan and insulin. The House of Commons has passed the Public Health (Scotland) Amendment Bill to allow local authorities to assist persons who could not otherwise afford it to obtain insulin treatment. Other Government Bills in the list are the Factories Bill and the Lead Paint (Protection against Poisoning) Bill, both prepared by the Home Office, the Board of Trade's Bill as to sale of bread, and the Mines Department's Coal Mines (Washing and Drying Accommodation) Bill. Of these the Factories Bill is believed to have the best chance. Part of it is mere consolidation of existing law, part is extension and amendment. There is a good deal of confusion to be cleared up in factory and workshop legislation. Last March an Order was made as to first-aid equipment at quarries and pit-banks. It was an excellent Order, but its statutory origin was obscure. Those who were curious to track down the statutory authority for the Order found it hidden in a Workmen's Compensation Act; and those who wondered why that particular provision applied to quarries found the reason in the legal definition of a quarry as a "non-textile factory." All these distinctions between a textile and a non-textile factory and between a factory and a workshop will be removed if the new Bill becomes law. Various matters at present covered piecemeal by Welfare Orders and Departmental Regulations will be dealt with comprehensively by statute. Another proposed change is to hand over to factory inspectors (in place of local sanitary authorities) the enforcement of provisions relating to cleanliness, overcrowding, ventilation, and sanitary conditions.

When the two Houses rose in August the chief achievement of the year in health legislation was the alteration of the law of workmen's compensation in respect of silicosis. The National Health Insurance (Cost of Medical Benefit) Act closed a controversy in which the approved societies had taken a vigorous part. The consolidating National Health Insurance Act is a boon to all concerned. Its 150 pages contain in a single and well-constructed code the whole of the permanent law, and it is understood that corresponding codes of national health insurance regulations will be issued at the end of the year when the Act takes effect. The consolidating Bills relating to housing and town planning have yet to receive the Royal Assent. Many other measures directly or indirectly concerned with health and social welfare have had their careers checked. The Bills as to adoption of children, guardianship of infants, and legitimacy are examples. Colonel FREMANTLE's useful Births and Deaths Registration Bill is not yet law. Lieut.-Commander KENWORTHY'S Dogs' Protection Bill (to restrict vivisection) had its counterpart in the House of Lords, where Lord BANBURY of Southam was once more heard upon a topic he has made his own. Lord BANBURY'S Bill was successfully opposed by Lord KNUTSFORD in a debate in which the Lord Chancellor declared that the Government considered the Bill would put an end to essential research, and Lord PARMOOR reported the unanimous opinion of the Medical Research Council to the same effect. One Bill which has not yet had as much consideration as it deserves is the Smoke Abatement Bill, which the House of Lords briefly discussed last July. A House of Commons measure for which much might have been said was Mr. WELLS's Public Health Acts (Amendment) Bill "to incorporate in one Act certain provisions relating to public health and local government contained in local Acts." To bring all local authorities into line with the most advanced municipalities in health matters is a most laudable ambition. Unfortunately, in the present congestion of Parliamentary time, health standards, in so far as they can be advanced by legislation, make better progress by local than by public Act.

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THE AFTER-HISTORY OF BREAST-CANCER OPERATIONS.

THE gradual evolution and perfection of surgical therapy in general has accustomed us to expect a high percentage of cures in most diseases where such treatment is undertaken, but there must be one reservation in making such a statement. In malignant disease an equally high proportion of permanently good results can by no means be claimed in spite of the vast amount of care, thought, and effort which has been expended upon the elaboration of technique devised to eradicate it. The natural disappointment which has followed the failure of sustained attempts to ensure the same measure of success in cancer operations as is obtained in other departments of surgery has expressed itself of late in a certain pessimism to be discerned in the writings of surgeons engaged in the treatment of the various manifestations of this malady. There has grown up an atmosphere of diffidence and uncertainty as to the propriety of performing some operations which have been regarded until lately as essential proceedings if cure is to be obtained, a questioning of the advisability of attempting to expel the disease by such extensive removals as have been in vogue. In the case of cancer of the breast there has arisen a vague feeling, scarcely amounting to a definite opinion, that the end-results of modern operations have not been commensurate with the alterations and supposed betterment of technique employed. It is easily understood why such contentions should be put forward. Every surgeon is aware of a number of recurrences which have taken place in his own practice after what have appeared to be most satisfactory procedures in the light of present-day surgical knowledge. The general practitioner can tell of early cases where, in spite of a thorough local removal, the patient has succumbed subsequently to secondary growths in other parts of the body. These tragic results, where large operations have failed to avert the fatal issue, make deep and lasting impressions upon the practitioner's or surgeon's mind. They call forth doubts about previously unquestioned beliefs in the advisability of and necessity for the modern extensive operative procedures. In these circumstances, the inquiry into cancer of the breast, initiated by the Departmental Committee on Cancer of the Ministry of Health, is of very considerable value. The investigation was carried out by Dr. JANET E. LANE-CLAYPON. The literature of the last 50 or 60 years from nearly all European countries and from America has been laboriously submitted to modern statistical methods of research. Never before has such a comprehensive review of this subject been undertaken, and the care which has been bestowed to avoid errors in making deductions from the enormous amount of material at the disposal of the author invest the results arrived at with an exceptional degree of reliability. In all, the case reports of 25,410 patients came under consideration, and of these just under 20,000 were available for the study of end-results. The report is arranged under three separate sections, which deal with the operation and its results, the clinical condition of the patient, and the ætiology.

The question whether the "complete" operation gives better results than those claimed by the older surgeons who practised the "incomplete" method appears to be settled in the affirmative. All the statistics, even when critically analysed, seem to show that more patients survive any given point of time after operation when it has been of the modern "complete" type. Nor does there appear to be any ground for thinking that cancer cells are disseminated more easily by the bigger operation. It is admitted that, in spite of surgical treatment, a deplorably large percentage of operated patients subsequently die of metastases. Have these women gained anything by submitting to operation? Has the time of death been hastened, postponed, or unaffected? It is not easy to reach a decisive answer to these questions for the following reasons. Unfortunately for Dr. LANE-CLAYPON, most authors have taken the unduly short period of three years as the crucial interval after operation on which to assess their results, and she has thus been forced to use this period as a basis of calculation of average results. The difficulties of following up cases over a long period of years are great, but since not a few patients survive for three years and yet succumb to recurrence many years later, it would seem worth while for surgeons to extend their basis of calculation to five if not to ten years survival after operation. We understand that the inquiry which is now being made by the Medical Society of London will cover the longer periods of survival. In considering such a problem as the curability of cancer, and the relative values of partial and complete operations, a more severe test than three years would seem necessary, especially since the average expectation of life after the onset of cancer of the breast, when the disease runs its own course, is estimated at three and a half years. Bearing these limitations in mind, the outcome of Dr. LANE CLAYPON'S inquiry remains of great interest. She concludes that after the complete operation 50 per cent. of patients pass the three-year period, and 33 per cent. will be alive at the end of five years. Making allowances for the natural death-rate of persons at the cancer age and other corrections, the deduction is arrived at that the mean duration of life from the "complete" operation is five years eight months. Now, on the average, patients do not come to operation until one year after they are aware of the onset of the disease. Hence with the complete operation the expectation of life is six years eight months, so that the result of operation is to prolong life by more than three years of actual time. If we turn to patients operated upon in the early and most favourable stages of the disease, the gain is seen to be much greater, for they live on an average ten years longer than the operated cases. With regard to the use of X rays and radium as auxiliary measures to surgery, the author declares that practice has not been sufficiently standardised for data which lend themselves to statistical inquiry to be available.

The whole report is full of interesting facts which emerge from the inquiry. Thus the belief that cancer in young people follows a more malignant course is shown to be erroneous, and numerous other questionable points which have long been in doubt are settled. The active surgeon must feel gratification in the demonstration that, though his results in this disease fall far short of perfection, yet he is the means of prolonging life for considerable periods and certainly ameliorates the unhappy lot of those unfortunate women who inevitably fall victims to the late manifestations of it. It is clearly brought out also that the prognosis is incomparably better when the patients apply early for surgical relief. The hope for improvement in the future lies in this direction rather than in further extension of the operation, which seems to have been pushed to its practical limits.

The Services.

CIVIL CONSULTANTS TO THE ROYAL NAVY.

THE following Civil Consultants to the Royal Navy have been recently appointed by the Admiralty:—Sir Humphry D. Rolleston to be Consulting Physician; Mr. Arthur Edmunds to be Consulting Surgeon; Dr. C. Hubert Bond to be Consultant in Mental and Neurological Diseases.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. R. H. St. B. E. Hughes is placed on the Retd. List with the rank of Surg. Capt.

C. H. Savory (late Tempy. Surg. Lt. R.N.) to be Surg.-Lt.

E. J. K. Weeks to be Surg. Lt.

TERRITORIAL ARMY (R.A.M.C.).

Col. J. Clay, T.D., K.H.S., resigns his commn. and retains the rank of Col. with permission to wear the prescribed uniform.

Lt.-Col. J. M. Gover, from R.A.M.C., T.A., to be Col. and Assistant Director of Medical Services, 50th (Northern) Division, T.A., vice Col. J. Clay.

Capt. W. E. Hodgins resigns his commn. on appt. to the R.A.F.

G. H. R. Gibson (late Canadian Army Medical Corps) to be Capt.

Capt. J. Robertson (late R.A.M.C., S.R.) to be Capt.

Surg. Lt. N. Braithwaite (late Royal Navy) to be Lt.

D. F. Hocker to be Lt.

ROYAL AIR FORCE.

Flight Lt. E. D. D. Dickson and Flying Officer J. G. Russell are granted permanent commns.

Annotations.

"Ne quid nimis."

VOLUNTARY BOARDERS IN MENTAL HOSPITALS.

THE story was told many years ago by a medical officer of one of the large mental hospitals in Scotland that one day he was standing at the main entrance of the hospital in the company of a head attendant who had grown grey in the service of the institution. As they were chatting together and looking down the carriage drive, a man carrying a portmanteau was seen to approach. The head attendant, who was rather proud of his clinical sagacity, remarked: "Here comes a new patient, and he must be very bad indeed as he comes by himself." The speaker may have intended his remarks to have been taken as a sample of pawky humour, yet they were no doubt in sympathy with current trained opinion and would be echoed by the ordinary layman at the present time. The average man would say that a patient must be very insane indeed if he were of his own free will to seek admission to a mental hospital. Yet what are the facts? Every year large numbers of voluntary boarders apply for admission, and there are mental hospitals in England and in Scotland where those received in this way actually exceed in number those that are certified. In England voluntary boarders can be received only in registered hospitals and licensed houses. Bethlem Royal Hospital and Holloway Sanatorium are examples of the former, and "licensed house" is but another name for "private asylum." The large mental hospitals managed by committees of county councils or county borough councils are not permitted by law to admit voluntary patients. It is pleasant, however, to be able to record that there are two exceptions to this statement. A special Act of Parliament empowers the Maudsley Hospital, which was built by the generosity of the late Dr. Henry Maudsley and is under the control of the London County Council, to receive voluntary boarders only. Just recently the Royal Assent has been given to the City of London (Various Powers) Act, 1924, under which voluntary boarders can be received at the City of London Mental Hospital, Dartford. By the same statute the words "mental hospital" replace the word "asylum" in the official title of the institution.

SUBOCCIPITAL PUNCTURE IN MENINGITIS.

IN a recent number of the *Münchener Medizinische Wochenschrift* Dr. Adolf Hartwich, assistant in the Medical Clinic of Halle University, reviews the literature and records his experience of suboccipital puncture for removal of fluid from the cisterna magna in meningitis. Apart from 81 occasions on which he has employed the method for diagnosis he has recently used suboccipital puncture with success in two cases of cerebro-spinal fever. The first patient was a girl, aged 12, in whom suboccipital puncture was performed 13 times in the course of 25 days, 20 c.cm. of anti-meningococcus serum being injected on each occasion after removal of 30 c.cm. of cerebrospinal fluid. The injections were well borne, although the patient complained of headache regularly after each injection. Recovery took place in five weeks. On several occasions lumbar and suboccipital punctures were carried out at the same time, and comparative observations were made of the globulin reactions, the cellular content, and the pressure of the column of cerebro-spinal fluid. Except on one occasion more cells were found in the fluid removed by lumbar than by suboccipital puncture. The globulin reactions were the same in both fluids. The pressure of the cerebro-spinal fluid was, as a rule, higher on suboccipital than on lumbar puncture. In the second case, which occurred in a man aged 22, suboccipital puncture was performed 11 times in the course of three weeks and anti-meningococcus serum, the exact amount of which is not stated, was injected. Lumbar puncture in this case was very difficult owing to the narrow space between the vertebræ, and only a few c.cm. of turbid fluid could be obtained by aspiration, whereas 20–30 c.cm. were readily withdrawn by suboccipital puncture. Comparative examinations of the fluids obtained by suboccipital and lumbar punctures were made with similar results to those in the first case. Recovery took place in six weeks. No bad effects from suboccipital puncture, nor failures such as "dry taps," or mixture of blood with the cerebro-spinal fluid, were observed in either case. Dr. Hartwich claims that suboccipital puncture causes less discomfort to the patient and is more easily carried out than lumbar puncture. It is of special value in cases in which lumbar puncture yields no result owing to the formation of fibrin clots during the acute stage or of adhesions during the stage of recovery. He also points out that owing to the necessity for repeated punctures, both in meningococcic and tuberculous meningitis, it is important to have more than one site for puncture at one's disposal. Moreover, in otogenic or other local variety of meningitis suboccipital puncture may prevent further spread of infection.

PHOSPHORESCENCE OF FISH AND MEAT.

A Service correspondent writes that he was consulted recently about a smoked haddock brought to him because it was luminous in the dark. Was it fit to eat? Although the streak of luminosity was quite definite there was no unpleasant smell, and as there was nothing else immediately available for breakfast, our correspondent passed it as sound. When cooked the luminosity had completely disappeared and the food gave rise to no unpleasant symptoms. The phenomenon of light production in dead tissues is very interesting; it appears to be due almost exclusively to the presence of photogenic bacteria, a fact which was recognised by Pflüger as long ago as 1875. The first isolation of one of these forms in pure culture was made by Fischer, who described its properties in 1887. Since then there has been a large amount of rather spasmodic and unconnected work expended on these curious species and a good many facts concerning them have become known. In nature they are generally found upon marine products, although also seen occasionally upon butchers' meat. They are also found invading crustacea and small marine metazoa in which they cause the phenomenon of phosphorescence and, not improbably, lead a symbiotic existence; they also appear to be the cause of the phosphorescence sometimes seen at sea. Photo-bacteria are widely distributed over the world's surface and have been found in India, Europe, and Australia. On at least two occasions human subjects have been described as giving off luminous sweat, and it is probable that there has been an invasion of the crypts of the sebaceous and sweat glands by photogenic organisms, pursuing a saprophytic existence on the surface of the body. Phosphorescence of consumable articles does not indicate unfitness for human food. Most of the known species flourish at low temperatures and can live and produce their specific effect at the temperatures employed for the storage of fish and meat at which ordinary putrefactive bacteria are not active. It is stated, indeed, that these organisms perish when active decomposition takes place in the material upon which they are living. They are readily culturable upon ordinary media, and experimental inoculation of animals has proved them to be non-pathogenic. In his monograph[1] on the Nature of Animal Light, Prof. E. N. Harvey, of Princeton, mentions some ways in which luminous bacteria have been made of service to man. Beijerinck has used them for testing the permeability of bacterial filters; Dubois and Molisch have suggested them as an illuminant in powder magazines where any sort of flame would be dangerous. It is certainly possible in emergency to read the time in the dark by the light of a glow-worm, but so far, at any rate, low temperature illumination by living things has not been exploited to any great extent.

THE LIMITATION OF HARMFUL DRUGS.

In view of the forthcoming Second International Conference on Opium, which has been summoned in Geneva for Nov. 17th to consider the best means of suppressing the abuse of morphine, cocaine, and other dangerous drugs, there is a special interest in a recent report of the International Institute of Agriculture in Rome on the question of the substitution of other crops for the opium poppy and the coca leaf. This report is the result of an investigation undertaken by the institute at the request of the League of Nations, and deals with an important side of the problem. It will be the work of the November conference to draw up a convention limiting the world's production and manufacture of harmful drugs to the world's medical and scientific needs. Undoubtedly the most difficult problem facing the conference is that of the limitation of production, since the largest of the great opium-producing countries—namely, China—has very little control over its own people, and the opium poppy is so valuable a crop. It has been found that the coca plant, from which cocaine is derived, could be replaced by the cinchona tree, the tea plant, the coffee tree, and the rubber tree; but whereas an area planted with coca will yield £146, the same area planted with cinchona produces £134, with tea £98, with coffee £80, and with rubber only £49. Furthermore, land suitable for coca cultivation is not always entirely suitable for cinchona cultivation. As regards the opium poppy, statistics are less reliable, owing to the varying contents of morphine in the opium grown in different countries. It is also a very valuable crop, and none of the plants which have so far been suggested for substitution would be as profitable. The best substitutes involving the least financial loss are plants producing valuable essential oils such as the citronella, geranium, rosa, and perilla (lemon grass). In the meantime, the League's Advisory Opium Committee has succeeded in drawing up certain concrete proposals, which are to serve as a basis for the discussions of the November conference, and which have now been circulated to all the States taking part in it, including non-members of the League. Amongst other suggestions, it is proposed that each country becoming a party to the convention should furnish every year an estimate of the raw material and manufactured drugs which it would require during the year and undertake further not to import more than was specified in its yearly estimates. These estimates, together with other statistics, would be sent to a central board, which would thus be in a position to follow the course of the international traffic, and see to it that the exports or imports into any country did not exceed the original estimates furnished by that country. A number of important provisions designed to strengthen the existing Hague Convention of 1912 will also be considered by the conference. The system of import and export Government licences instituted by the League, and already enforced by many Governments, whereby an export licence is only issued by the Government of the exporting country on the production of a certificate from the Government of the importing country, will be further extended. Provisions are also proposed to ensure that drugs which are brought into free ports do not escape control, and special arrangements are suggested for safeguarding the "entrepôt" trade as carried on by means of bonded warehouses. Other proposals are that the coca leaf shall be brought within the Hague Convention and that the definition of cocaine shall also include the artificial product obtained by chemical synthesis.

Finally, the Advisory Committee has appended two recommendations for the consideration of Governments. The first of these is based on a provision in British law, which has been found extremely useful in dealing with illicit traffickers, who, while residing in one country, organise or arrange for illicit transactions in another country. The second is intended to meet a very serious difficulty, which is caused at present by the lack of any control over the exports from certain producing countries. Large consignments of raw opium without any restriction are being exported to the Far East under false declarations of destination for the purposes of the illicit traffic, and are being smuggled into China and elsewhere. It is accordingly proposed that Governments should exercise a control over the conveyance of opium and other materials or drugs in ships sailing under their flag.

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[1] Monographs on Experimental Biology. Edited by Loeb, Morgan, and Osterhout. J. B. Lippincott Company.

THE NEW GOVERNOR OF MAURITIUS.

THE appointment of Sir Herbert Read, one of the Under Secretaries of State for the Colonies, to be Governor of Mauritius and his consequent departure from the Colonial Office are events of very considerable importance in the realms of tropical medicine and hygiene. Those medical men who have been privileged to work with him at the Colonial Office will view the change with mixed feelings. They will be glad to know that the important work of retrieving the sanitary condition of Mauritius, inaugurated by the retiring Governor, Sir Hesketh Bell, is assured of sympathetic and skilled consideration under the ægis of his successor, and they will regret parting with Sir Herbert Read, who, for so many years, has been the official at the Colonial Office most intimately concerned with questions of medical and hygienic importance in our overseas possessions. Sir Herbert Read is not one of those who desire to be for ever in the limelight. He works quietly but none the less effectively, and his medical and veterinary colleagues upon many committees can testify to his zeal and unfailing courtesy. For a layman his record has been remarkable and his activities on the medical side of official life are, in part at least, to be attributed to the fact that he was private secretary to Mr. Joseph Chamberlain at the time when that statesman, prompted by Sir Patrick Manson, evinced a keen interest in the health of our tropical possessions, more especially in those on the once dreaded West Coast of Africa. Mr. Read, as he then was, filled the post of chairman of the Committee appointed in 1901 to report on a scheme for the amalgamation of the medical services in the West African colonies and protectorates. Since then he has been closely associated with all questions relating to tropical medicine and hygiene in British tropical Africa and also in other parts of the Empire, and he has been largely instrumental in the establishment of the Tropical Diseases Bureau, which developed from the Sleeping Sickness Bureau, and of the Imperial Bureau of Entomology. Deeply interested in African sleeping sickness and its relation to big game, he was concerned in obtaining the appointment of an Interdepartmental Committee which in 1913–14 considered these subjects and issued a report regarding them. He had previously been a member of the International Conference summoned to inquire into that disease, and it was as a result of this Conference that he took the steps which led both directly and indirectly to the establishment of the above bureaux. He has also represented the Colonial Office in the various negotiations as regards tropical research with which the Royal Society has from time to time been associated. Perhaps his most important service to the cause he has so much at heart has been rendered as chairman of the Colonial Advisory Medical and Sanitary Committee. He has presided over the meetings of this body since its inception, and his tact and kind consideration, coupled with his ability for getting business put through, have greatly aided the deliberations. As chairman of the Tropical Diseases Research Fund he has also been able to help on the good work, and his activities in all these various directions were suitably recognised when the Royal Society of Tropical Medicine and Hygiene elected him one of its honorary Fellows. All those who have been privileged to come into close contact with Sir Herbert Read in connexion with medical and sanitary work in the tropics will unite in wishing him every success in his new sphere of duty, where he will have opportunities of applying practically those principles with which long years of devoted service at the Colonial Office have rendered him familiar.

THE ROYAL SOCIETY'S EXHIBIT AT WEMBLEY.

THE great exhibition at Wembley closes at the end of the present month, and the opportunity should not be lost by those who have not done so already of seeing the exhibit of pure science arranged by the Royal Society in the British Government Pavilion. The heart-lung apparatus shown by Prof. E. H. Starling has been employed by him and by his pupils for many important researches. It enables the mammalian heart to be studied under exactly controlled conditions. The demonstration of physical apparatus by Prof. A. V. Hill includes recording thermometers, string galvanometer, the hot-wire sphygmograph, and the "Katharometer" for determination of CO_2. There are also shown the apparatus used for experiments on the energy expended in movement by Prof. E. P. Cathcart, a demonstration of the physiological action of light by Dr. D. T. Harris, and one by Dr. H. Hartridge and Mr. F. J. W. Roughton on apparatus for the study of blood gases. These are all of real interest to those who have enjoyed an exact scientific training, although it may be doubted how far this exhibit can be expected to appeal to the general public. It has, however, the admirable lucidity of a lecture by one who has such mastery of a difficult subject that he can deal with it in simple terms. The "Handbook" (obtainable from Messrs. A. and F. Denny, Ltd., 163a, Strand, London, W.C. 2, 1*s.* 3*d.* post free) contains, besides a description of the exhibit, articles on the Origin of Man, by Dr. A. Smith Woodward; on the Circulation of the Blood, by Prof. Starling; on the Biological Action of Light, by Dr. Harris, and on Muscular Work, by Profs. Hill and Cathcart. These summaries by experts are of especial interest. The Royal Society evidently regards medicine as a branch of biology, for in Exhibit 223 we find among the portraits of eminent biologists those of William Harvey and Joseph Lister. This is taking a broad view of the situation.

STARCH IN DIABETIC FOODS.

THE chief complaint of a patient with diabetes mellitus concerns the reduction of the amount of starchy food and especially of the bread which is ordered. It is natural, therefore, that many attempts should have been made to prepare a substitute which will meet the approval of the patient. Bread contains starch, protein, and fat, and it is possible to remove nearly all the starch, leaving only the protein and fat. The more complete the removal of the starch the more difficult it is to produce a food which is at all palatable. But as the result of prolonged efforts a series of foods have been made which contain practically no starch, and although no one would eat them of choice, yet they are by no means unpalatable. However free from starch these foods are, the patient should remember that the caloric value of 1 oz. of a diabetic food is greater than that of 1 oz. of ordinary bread. This is partly due to the increase in the proportion of fat which has a higher caloric value than starch, and partly to the smaller proportion of water which the foods usually contain. Since the total caloric value of the diet must be considerably reduced the patient often has to make his choice between a diabetic food and other foods such as meat, fish, eggs, and cheese. Under these circumstances the wise patient usually takes a minimal amount of the diabetic food. Although the purest diabetic foods contain very little starch, there are others which contain a considerable amount. It is unfortunately a common occurrence for a patient who has made a fair recovery of sugar tolerance to return after a few weeks absence, either passing sugar or with a considerable elevation of the blood-sugar. On inquiry the statement is often made that a diabetic food has been recommended by friends and bought from a small baker. Testing the bread with a weak solution of iodine is sufficient to show at once that the sample contains much starch. It is not always the small baker's bread which has been the cause of the return of symptoms. Patients are only too apt to eat anything which is called a diabetic food without reading the literature which is supplied with the food. One well-known company, for instance, supplies a diabetic bread which contains 40 per cent. of starch as compared with 55 per cent. in ordinary bread, and the fact that one-third of the starch has been removed is clearly stated in the advertisement. In spite of the removal of this amount of starch the bread still remains fairly palatable, and the patient who eats one and a half ounces of it should realise that he is taking the same amount of sugar as if he were eating one ounce of ordinary bread, while the caloric value is greater. The introduction of insulin has been responsible for the much greater attention which is being paid to the details of diet, and patients are taught to think of their food in terms of caloric value, sugar, protein, and fat values. It would therefore be a great help if the makers of the various foods would state clearly on the label as well as in the literature supplied the following data. One ounce of —— contains *a* g. of starch, *b* g. of protein, *c* g. of fat, and *d* total calories. If this were done it would assist the luckless patient who already has sufficient troubles to contend with.

A NEW METHOD OF SPHYGMOGRAPHY.

IN a volume[1] which maintains the high typographical standard of modern Spanish medical works, Dr. D. Miguel Gil-Casares of Santiago describes a new and ingenious method for obtaining sphygmographic records and the instrument he uses for the purpose. He calls his instrument a "palograph" and the method "palography," coining the words by derivation from the Greek *πάλλω, παλλομαι*, to oscillate or palpitate. The arterial, venous, or cardiac impulse is transmitted not, as in the ordinary sphygmograph, to a movable arm whose extremity records its movements on a surface of lamp-blacked paper, but to a column of some highly mobile fluid, such as ether or acetone, in a U-shaped tube, the movements of the liquid surface in the open limb of the U-tube being recorded photographically on a moving sheet of sensitised paper by the passage through it of a beam of light. The author states that Volhard's experiment for demonstrating the asynchronism of the carotid and jugular pulses by connecting manometrically to each a U-shaped tube containing a column of liquid, the liquid being coloured differently in the two tubes, gave him the idea that it might be possible to obtain a photographic record of the oscillations of the liquid due to the venous or arterial impulse. In the course of experiments on the subject the author noticed that a beam of light directed through a limb of the U-tube with its column of liquid on to a sheet of paper, gave, after passage through the liquid, a central bright line bordered by two dark bands. A profile of the tube with uniform illumination was observed where the beam had traversed the part of the tube containing air, while, at the level of the meniscus, a dark spot, or rather a small dark triangle with apex downwards, separated the two former areas. If for the sheet of ordinary paper a moving sheet of sensitised paper was substituted, the effect produced was that of a triple band with a dark lower portion where the beam had passed through the column of liquid, an upper, less dark, portion where it had passed through the air above the liquid, and a bright line, separating the other two, where the concave meniscus, acting as a double prism, had cut off the light from that portion of the sensitised paper immediately behind it. If now an arterial, venous, or cardiac impulse be transmitted to the liquid in the tube the triple band is thrown into waves. Its parts, however, retain their relative positions and the result is the production of a beautifully clear and bold photographic representation of the impulse under investigation. The author discusses the application of his method to the investigation of various pathological states, and his book is illustrated by numerous interesting, and indeed beautiful, "arteriograms," "phlebograms," and "cardiograms." His description of the instrument he has designed for the production of these photographic tracings (made by the Berlin firm "Sanitas") is not very clear. The actual instrument may, however, explain itself.

WELFARE WORK IN INDUSTRY.

THE report which we print elsewhere (p. 718) of the annual conference of the Institute of Industrial Welfare Workers gives good reason for the belief that if we are to have healthy and contented workers there must be close coöperation between the doctor and the psychologist on the one hand and the welfare worker on the other. For the welfare worker has come to stay. The number of women employed in this capacity has risen from a pre-war total of 25 to over 600. If the valuable work which is being carried out by the Industrial Fatigue Research Board and the Institute of Industrial Psychology, for example, is to be successfully applied to industry the welfare worker must help to prepare the way, for the workers are naturally suspicious of psychology, as one of their spokesmen said at the conference mentioned above. At the same time, the effect of the scientific study of industry is to make fatigue less prevalent, to make work "easier" in the sense that unproductive and misapplied energy is curtailed, and the workers themselves will be the first to benefit, quite apart from the economic aspect of increased output. In the heat of discussion, one of the employers present made the strange indictment of the medical profession when he said that some doctors only went near a factory in order to collect their fees, that they never saw the workers at work, and that they frequently never saw the workers they were supposed to examine. The general feeling of the conference was that such an experience is fortunately rare, but Dr. W. F. Dearden in the course of his paper urged to good purpose that the physical fitness of workers could only be fairly assessed in the light of the work they had to do, and he encouraged all doctors in industrial districts to familiarise themselves with the work their patients engage in. Another point of view was that expressed by Dr. A. G. Yates, who took the chair at one of the meetings, when he suggested that welfare workers could pass on to the workers much information about health in general; they might, for instance, preach the value of sunlight and the importance of proper diet in the light of recent research. The welfare worker would thus become the link between the factory doctor or psychologist and the workers. The health of the industrial population is a great national problem, and especially in the present period of depression the waste caused by ill-health and unproductive work should receive consideration.

THE first meeting of the Royal Commission on Lunacy and Mental Disorder will be held at the Royal Commission House, 5, Old Palace Yard, Westminster, on Tuesday, Oct. 7th, at 10.30 A.M., when evidence will be given by the Board of Control. On the following day at the same time the Ministry of Health and the Lord Chancellor's Department will give evidence.

THE Guild of St. Luke will hold its diamond jubilee service at St. Paul's Cathedral on Tuesday, Oct. 21st, at 7 P.M., when the Bishop of Truro will preach. Academic dress will be worn. Tickets may be obtained on sending stamped addressed envelope to Rev. H. Kirkland-Whittaker, M.D., Chaplain's House, Banstead Downs, Sutton, Surrey, or to Dr. Dorothea Brooks, 65, Park-road, Battersea, London, S.W. 11.

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[1] Manual de Palographia Fisiologica y Clinica. Por Dr. D. Miguel Gil-Casares, Catedratico de Clinica Medica, Ex-Senador del Reino por la Universidad de Santiago. Prologo del Prof. Dr. L. v. Krehl de Heidelberg. Madrid: Libreria Gutenberg de Jose Ruiz. 1924. Pp. xii.-216.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XC.—COMMON FRACTURES OF THE ELBOW-JOINT IN CHILDREN.

IT is generally recognised that all fractures about the elbow, excepting fracture of the olecranon, should be treated with the elbow fully flexed and forearm supinated. In practice it is important to realise that good results will not be obtained unless the displacement of the fragments is first reduced. Swelling of the limb may tempt one to leave the elbow at a right angle, with the result often that further flexion cannot be obtained when the swelling has subsided. Hence it is important to judge the appropriate methods of treatment for each fracture so that good function is produced and complications are avoided.

Supracondylar Fracture.

Supracondylar fracture (separated epiphysis of the lower end of the humerus) is a common accident in children, occurring usually between the ages of 5 and 10; it may occur before the age of 5 and in older children up to 15 or thereabouts. The injury is frequently called a separated epiphysis, but the line of fracture is on the diaphyseal (shaft) side of the epiphyseal line, so that the lower fragment consists of the epiphysis and some of the soft bone of the shaft adjacent to it. This fragment is displaced upwards and backwards, but, in addition, often laterally, either inwards or outwards. The radius and ulna move with the lower fragment. When the child is seen shortly after the accident the diagnosis causes little difficulty, but when swelling has commenced the bony points cannot be felt. X ray examination is essential: (*a*) to confirm the diagnosis, (*b*) for comparison with another plate taken after correction, and (*c*) for medico-legal reasons. Both lateral and antero-posterior views are required.

(1) *Reduction.*—In order to get efficient reduction, which is essential for a good functional result, the child must be given a general anæsthetic. The limb is then washed, dried, and powdered. An assistant, who may be a nurse, holds the arm firmly some inches above the elbow, and applies counter-traction at the appropriate time. The surgeon grasps the forearm in his right hand and holds it fully supinated. He places his left hand round the elbow, so that the thumb is against the front of the lower end of the shaft of the humerus and the fingers at the back of the joint over the lower fragment and olecranon. Traction is then applied to the forearm in the axis of the limb, allowing for the carrying angle at the elbow. This must be very strong and maintained during the subsequent manipulations. The elbow is then hyper-extended to free the lower fragment; next it is gradually flexed, during which manœuvre the left hand presses the humeral shaft backwards and the lower fragment and olecranon forwards. This will not be possible unless the strong traction is continued. After satisfactory reduction the operator carries the elbow into full flexion with the forearm fully supinated. It is judicious for a radiogram to be taken to determine if reduction is complete.

(2) *Fixation.*—Powder is dusted into the fold of the elbow and a small piece of dry boric lint pushed into it. The wrist has then to be fixed to the upper part of the arm. A piece of felt or cotton-wool about three inches wide is wrapped round the lower end of the forearm above the wrist and round the upper part of the arm. A piece of adhesive strapping two inches wide is carried round the arm and forearm over the felt. The radial pulse and finger-nails should then be examined to make certain that no interference has been made with the circulation. If the child is under 6 the flexed arm is then kept across the chest by two turns of a six-inch flannel bandage round the body and arm. An older child should have the wrist slung in front of the chest by a "collar and cuff halter." This consists of a bandage or webbing round the neck fixed to the wristlet of the bandage. It is more comfortable if the bandage round the neck is passed through a piece of rubber tubing, and the forearm can only be kept fully supinated if the connexion between the collar and cuff is made on the inner side of the wrist. The elbow itself is left uncovered.

FIG. 1.

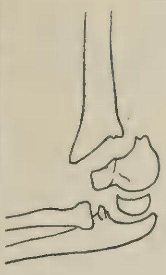
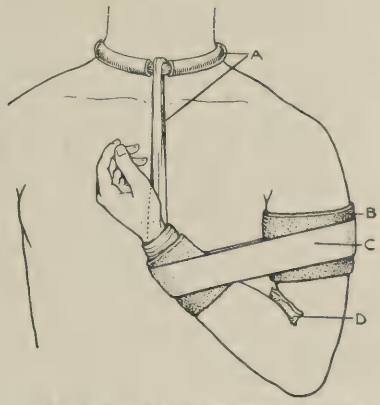


Diagram of supra-condylar fracture.

FIG. 2.



Method of fixation of arm. A, Collar and cuff halter. B, Felt. C, Adhesive strapping. D, Boric lint.

(3) *After-care.*—The limb is kept in this position for two weeks, during which period no movements should be allowed at the elbow, but finger and thumb movements should be encouraged from the commencement. Active or passive movements are dangerous and predispose to complications. Massage may be harmful if rough kneading is employed; it should be very gentle and applied where the elbow is swollen. At the end of two weeks the strapping is cut off, the child told to touch the shoulder with the fingers, and the forearm then let down a little every two days. It can be fixed with a flannel bandage round the arm and forearm in place of the strapping, or by the halter. Each time it is let down the child should be made to touch the shoulder, to show he has retained the full flexion. If he cannot do this, full flexion should be maintained for a few days longer. As a rule, in children the elbow can be at a right angle in three weeks after reduction. Shortly after this fixation can be discarded, but it may be wise for the child to wear a sling when out of doors. At this time he should be encouraged in active movements to regain the extension, such as pulling on a chair, but passive movements should be avoided as much as possible. If the elbow is greatly swollen, as will usually be the case if the patient is seen a day or two after the injury, treatment will have to be somewhat modified. Reduction should be carried out and the limb powdered, but full flexion cannot be obtained. Adhesive strapping should be avoided, as it may cut into the skin. Hence the forearm and arm should be bound together by two turns of a flannel bandage, in a position of as much flexion as can be obtained without causing undue pressure in front of the elbow. The wrist is then fixed in front of the chest by a collar and cuff halter. As the swelling subsides this can be drawn up every two days so as to increase the flexion and the bandage made more tight round the arm and forearm. The remainder of the treatment is as described above.

Difficulties and Complications.

(1) *Failure of Reduction.* Should reduction not be obtained, the best results follow open operation for reduction of the lower fragment.

(2) *Great Swelling* and blistering of the skin. The latter may be associated with the former. The region of the elbow should be painted with iodine and blisters pricked with a sterile needle and a dressing

applied. The modification of the treatment necessary in this condition has already been described.

(3) *Ischæmic Contracture* (Volkmann's paralysis). This condition is probably preventable by the avoidance of tight bandages round the elbow and by care in regulating the flexion, so that it is not so great as to cause compression of the brachial artery.

(4) *Myositis Ossificans* may follow this fracture if the reduction is performed roughly and if massage and movements are carried out injudiciously. It occurs more readily if the elbow is kept at a right angle. Its presence can be diagnosed sometimes as early as three weeks after the injury and straightway appropriate measures should be adopted to aid its disappearance. Absolute fixation of the elbow in as much flexion as is comfortable is indicated for some months. Massage and all movements are to be avoided, and operative treatment for removal of the bony mass should not be undertaken until after an interval of at least six months. The results of early operative treatment for this condition are disastrous, and late operation often fails to cure the condition owing to the tendency for the new bone to re-form.

(5) *Nerve Injuries.* Either the musculo-spiral, ulnar, or rarely median nerve may be paralysed as a complication of this fracture. In the case of the former a small "cock-up" splint should be worn to prevent the wrist dropping as soon as the arm is put in a sling, and electrical treatment commenced for the paralysed muscles. If there is no sign of recovery in three months, operative interference becomes necessary. When ulnar paralysis is associated operation is indicated for reduction of the fracture and inspection of the nerve.

(6) *Deformity* may occur at the elbow after partial or incomplete reduction, or if the forearm is brought into wrong alignment with the arm. Late operation may be required for cubitus valgus or varus.

Other Fractures.

Fracture of the external condyle in children consists of a separation of the capitellum and a small portion of the outer part of the lower end of the humerus from the humeral shaft. It is not very uncommon. The exact nature of the injury must be diagnosed by a skiagram to determine if there is serious displacement or not. If there is no displacement the elbow is fully flexed and the forearm supinated, as described above. Should displacement be present, reduction can be attempted under anæsthesia, but open operation may be required.

Fracture of the internal condyle is unusual before 10; in children similar treatment to that of fracture of the external condyle is applicable.

The *T- and Y-shaped fractures*, when there is a more or less transverse fracture of the lower end of the humerus with a line of fracture also into the elbow-joint, are uncommon in children. Treatment consists of open operation if there is gross displacement, but if the fragments are in good apposition the elbow should be kept fully flexed and the case treated similarly to the supracondylar fracture.

The *coracoid process of the ulna* is very rarely fractured in children in association with a backward dislocation. Injury to the *upper radial epiphysis* (the head) is also rare in children. The elbow should be kept flexed in each case. In the former case the dislocation is reduced first.

Summary.

In the treatment of fractures about the elbow-joint in children the following points are of importance: (1) efficient reduction; (2) position of acute flexion with supination; (3) avoidance of unskilled massage and early movements; (4) avoidance of lateral or side splints, which tend to deformity at the elbow, and right-angled anterior or posterior trough splints, which do not keep the fracture reduced and cause other untoward results; (5) operation is indicated when reduction is impossible or deformed union is present.

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Special Articles.

THE BLOOD PLATELETS AND THEIR PLACE IN MEDICINE.

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CONSULTING PATHOLOGIST TO THE WOLVERHAMPTON
AND STAFFORDSHIRE HOSPITAL.

The history of the blood platelets or thrombocytes in the past has been a chequered one; first studied with care and accuracy by Bizzozero in 1882, their existence has since been repeatedly affirmed and denied, and innumerable sources of origin and functions assigned to them. Bizzozero himself believed them to arise in the bone marrow from a genetic line distinct from that of the other formed elements of the blood; others have regarded them as a precipitate formed in the plasma at the moment of shedding and as having no existence in the circulating blood; Hayem thought that they were young red cells, and accordingly named them "hæmatoblasts," a title which still encumbers hæmatological nomenclature more particularly in France. It remained for an American worker, H. Wright,[1] to promulgate what appears to be the true theory as to their origin. This worker on the basis of certain tinctorial affinities between the platelets and the cytoplasm of the megakaryocytes on myeloplaxes of the bone marrow postulated a relationship between the two. He demonstrated the power of the megakaryocytes to throw pseudopodia into the sinuses of the bone marrow and produced strong evidence for the belief that these cytoplasmic processes becoming detached from the parent cell were carried in the blood as the platelets. All the weight of such evidence as has accumulated since Wright published his theory is in its favour. His views gained complete acceptance in America several years ago, and it is a demonstration of the value of a sound theory to practical medicine that his work soon found important applications at the hands of Duke and other American clinicians. In this country, possibly because they were based on purely morphological grounds, Wright's views did not gain general acceptance, and the very existence of the platelets continued to be doubted.

It remained for Ledingham[2] in 1914 to demonstrate beyond a doubt the existence of the platelets as entities by preparing, with guinea-pig platelets as antigen, an anti-serum, capable, on parenteral injection, of destroying the platelets of the same species. This work has since the war been assiduously followed up by Bedson, who has not only confirmed this observation, but has shown[3] that the disappearance of the platelets from the blood of the injected guinea-pig is followed by severe purpura. Furthermore, by preparing anti-sera against the other formed elements of the blood, Bedson has been able to show that none of these bear any close relationship to the platelets and certainly cannot serve as their sources of origin; anti-sera active against red cells, or against the granular or non-granular white cells are without effect upon the platelets.

The Effects of Thrombopenia.

That the elements are entities there can now be no reasonable doubt; the complete proof of their sources of origin awaits demonstration, but as to their relationship to the hæmorrhagic diathesis and to the production of purpura, the proof, both experimental and clinical, is now complete. It has been established that destruction of the platelets in the guinea-pig is followed by purpura; clinically Duke[4] has shown that in the human subject, when the platelet count descends below 60,000 per c.mm., there is an abnormal tendency to bleed, that when it falls below 10,000 hæmorrhage becomes severe and when below 1000 fulminant. He has, moreover, demonstrated that such a thrombopenia or diminution in the platelet count is associated with prolongation of the bleeding time and failure of the blood-clot to contract, though the actual clotting time remains normal.

Frank[5] and many other workers on the continent and in America have fully confirmed Duke's observations. Frank has endeavoured to evolve a hypothesis which should correlate all the forms of purpura associated with thrombopenia. He defines three main forms of this condition: intermittent thrombopenia, in which the platelets only occasionally fall to a low level and in which the purpuric attacks consequently occur at intervals; essential thrombopenia, in which the platelet count is chronically low and in which there is a tendency to hæmorrhage and bruising on slight trauma; and aleukia, in which both the granular leucocytes and the platelets are greatly reduced in numbers and the hæmorrhage is fulminating and usually fatal. All these forms Frank believed to be due to a primary deficiency of the bone marrow, the last only being found in conjunction with and as a result of a completely aplastic state of the hæmatopoietic system. Cases of this type in which infection has followed upon the myelophthisic condition have recently been described by the present writer[6] in THE LANCET.

The Rôle of the Spleen in Thrombopenia.

Enlargement of the spleen is a feature of most of the cases described above, such spleens on histological examination frequently showing masses of platelets in the sinuses; this has led some workers to believe that the actual cause of the thrombopenia might be the destruction of the platelets by the spleen. It has remained for Bedson, as recently pointed out in THE LANCET,* to demonstrate clearly by experiment the thrombocytolytic action of the spleen. He showed that in the guinea-pig splenectomy is followed by a great but temporary rise in the platelet count; so great is this rise that recently splenectomised guinea-pigs are capable of standing without symptoms a dose of anti-platelet serum which in unsplenectomised guinea-pigs produces violent purpura. Bedson, however, found that even in splenectomised animals the platelet count soon reverted to a normal level. This last observation makes it difficult to understand the permanent good results reported recently as obtained by splenectomy in human cases of purpura hæmorrhagica.

A possible explanation of this is offered by the recent work of Seeliger[7] in Germany. This author, by the examination of marrow obtained by sternal puncture from patients suffering from purpura, claims to have been able to divide his cases into two classes. In the first the bone marrow showed megakaryocytes in normal or excessive numbers, these, however, being characterised by the absence of the normal granulation of the cytoplasm. In the second class the marrow was aplastic, showing few hæmatopoietic cells of any sort. In the first class the spleen on histological examination was found to be packed with platelets; in the second platelets were absent from this organ. The cases of the first type Seeliger regards as dependent upon an abnormality of the megakaryocytes, which consequently produce abnormal platelets, and these being abnormal are removed by the spleen as soon as liberated in the circulation. To this type of case Seeliger would limit Frank's term "essential thrombopenia." The second class of case he regards as dependent upon a failure of function upon the part of the red marrow, the platelets, along with the granular leucocytes, undergoing a diminution as a result of the collapse of the machinery for their production; to this type he would limit the term "aleukia." Beneficial results are only obtained by splenectomy in the first class of case, such benefit being due to the withdrawal of the thrombocytolytic activity of the spleen and explicable on the assumption that even an abnormal platelet is better than none at all. In the second class of case the thrombopenia is dependent not upon the thrombocytolytic activity of the spleen, but upon actual failure of platelet production at its source, and in this type splenectomy is of no avail.

The Platelets and the Bone Marrow.

Leaving out of the question the thrombocytolytic action of the spleen, it is apparent that on theoretical grounds any condition of marked general activity of the bone marrow should be associated with an increase of the platelets. This has been put to the test of observation by Dr. G. J. Crawford, who reported the results of his work in a recent number of THE LANCET.[8] Dr. Crawford made counts of the platelets and of the granular and non-granular leucocytes in a number of conditions, some associated with an exaltation and some with a depression of the activity of the hæmatopoietic system. A study of his figures shows that, roughly speaking, the platelets are increased when the bone marrow is active and decreased when the contrary is the case. This is particularly well shown in the leukæmias; in the myeloid type a great excess of the leucocytes of the granular order is always associated with an intense thrombocytosis, the platelets in one case reaching nearly a million and a half per c.mm.; in the lymphatic type, on the other hand, the platelet counts are invariably low.

One of Dr. Crawford's cases also shows the marked effect of splenectomy in the human subject, the platelet count rising from under half a million before the operation to over a million shortly afterwards. The evidence marshalled in this paper points clearly to the bone marrow as the source of the platelets and further indicates their affinity, however remote, with the leucocytes of the granular order.

Interference with the function of the bone marrow as the source of the platelets offers a possible explanation of the thrombopenia observed by Cramer, Drew, and Mottram[9] as a result of keeping rats upon a diet deficient in vitamin A. In view, however, of the fact first demonstrated experimentally by Delrez and Govaerts[10] that the platelets tend to accumulate about any foreign particles in the blood-stream, bacteria included, it is possible to offer another explanation of this phenomenon. There is good reason to believe that upon diets deficient in either the A or C vitamin the gut wall becomes so damaged as to permit of the passage of micro-organisms into the blood-stream; such dissemination of organisms into the blood, if plentiful and long continued, might conceivably bring about a considerable thrombopenia. Observations upon the platelet counts in chronic microbic diseases might throw some light upon this point.

One of the few such observations is the article by Dr. R. G. Bannerman,[11] which recently appeared in THE LANCET, and this it is somewhat difficult to fit into the picture as we now see it. As the result of a long series of observations made upon patients suffering from pulmonary tuberculosis, this worker has arrived at the conclusion that a favourable prognosis is indicated by a low and the reverse by a high platelet count. In his series all those cases in which the platelet count remained below 400,000 per c.mm. tended to do well, while those in which it rose above 510,000 per c.mm. on the whole went steadily from bad to worse. It is difficult in the light of present knowledge to offer any explanation of this phenomenon, but if confirmed it should prove of the greatest value in the prognosis of pulmonary tuberculosis.

The recent appearance of two papers on the subject in THE LANCET with other recent work seems to indicate that, after a long period of neglect, the blood platelet is receiving its meed of attention from British clinicians; that this revival of interest should have followed so speedily upon the acquisition of the lately won knowledge of the nature and rôle of these bodies must be more than a coincidence, and serves to demonstrate the value of the experimental method to medicine.

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1. Wright, H.: Virchow's Arch. f. Path. Anat. u. Physiol., clxxxvi., 1906.
2. Ledingham, J. C. G.: THE LANCET, 1914, i., 1673.
3. Bedson, S. P.: Jour. Path. and Bact., 1922, xxv., 94; 1923, xxvi., 145.

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* THE LANCET, August 2nd, p. 229.

THE HEALTH OF THE ARMY IN 1921.*

THE medical profession has been eagerly awaiting this report by Sir William Leishman, Director-General of the Army Medical Services, who has already taken his share in producing the Medical History of the War, nor will any disappointment be felt at this compilation on the health of the army in a time of official peace. The present report is numbered Vol. LVII.; its predecessor, Vol. LVI., covered the first seven months only of 1914, as the reports during the war years were included in the Medical History of the War, while for the year 1920, owing to the abnormal conditions which then existed, it was decided that no report should be published. The report for 1921 is of great importance, as it tells of the careful organisations built up in the army for the study of hygiene, of pathology, and for the care of the soldiers' teeth. Sir William Leishman explains the delay in submitting the report as due to the many changes in the composition and distribution of the army which took place both during and after the period under review in connexion with the gradual reversion of the army to a normal peace footing.

The main body of the report is divided into five sections, dealing with (1) general considerations, (2) medical examination of recruits, (3) hygiene, (4) pathology, and (5) dental treatment.

General Considerations.

The health of the army in 1921 had considerably improved since the preceding year, but continued to be less satisfactory than before the war, owing to the poor physical condition of many of the recruits hastily enlisted to fill the vacancies of those demobilised on the conclusion of war. This, coupled with the fact that medical officers with experience in the medical examination of recruits were not always available to carry on this important work, led to a large number of men being passed as fit for service in the army who would otherwise have been rejected. But a return to the high standard which existed in 1913 may be expected at no distant date.

The average strength of *officers* in the regular army in 1921 was 13,897, of which the rate of admission to hospital per 1000 was 374·2, and the death-rate 5·9. The chief causes of illness were (expressed as the ratio per 1000) diseases of the digestive system (other than inflammation of the tonsils and of the liver) 56·6; local injuries, 52·8. Gunshot wounds accounted for eight deaths in Ireland, but no "wounds in action" are returned. The number of officers "finally discharged" is not mentioned.

The average strength of *warrant officers, non-commissioned officers, and men* was 239,525. The ratio per 1000 of illness was 650, with 4·2 deaths and 27·48 final discharges. The most frequent admissions to hospital were due to malaria, diseases of the digestive system, and local injuries, while the most frequent causes of death per 1000 were: injuries 1·34, pneumonia 0·52, malaria and diseases of the digestive system, each, 0·27 per 1000. The case-mortality of enteric was 8·33; of pneumonia 11·7; of small-pox 22; and of the four cases reported of meningococcus infection, three died. Suicides, it may be said here, are not counted into the total of deaths. Troops on board ship numbered 4551, and had relatively few admissions to hospital (414·6 per 1000) and only three deaths, two from pneumonia, yet there was a relatively higher case incidence of influenza, pneumonia, and bronchitis.

For this year for the first time a table is given summarising the health statistics of soldiers' wives. Their chief reason for admission into hospital was diseases of the generative system, in a ratio of 50·3 per 1000; diseases of the digestive system came next, 33·3. The incidence of pneumonia and bronchitis among the women is only a quarter of that among the men. There were on the Married Quarters Roll this year 24,684 children, with a death-rate of 12 per 1000, due chiefly to diseases of the digestive system and to malaria. Mention is made of 2709 cases of parturition.

Medical Examination of Recruits.

The statistics are, it is observed, compiled from the "recruiting year" (Oct. 1st, 1920, to Sept. 30th, 1921), in which 53,142 recruits were taken into the army and 32,962 candidates were rejected, either at once or within six months. The rejections were more numerous in 1921 than in 1913 (354·01 per 1000 as against 202·5). This was partly due to the standards having been raised, particularly as regards teeth and eyesight, and partly because men could now be rejected within six months of enlistment, not only in their first three months, as was the rule before the war. Also there was not, in 1921, time to "nurse" into efficiency the less physically fit recruits. Of candidates examined and passed, 791 per 1000 were natives of England, 110 of Scotland, 95 of Ireland, and 4 were born in British Colonies and foreign countries. The chief causes of rejection on examination were: sub-standard chest measurements 33 per 1000 of total candidates; defective vision, 58; heart diseases, 38; teeth lost or decayed, 35; flat-feet, 27. Of those at first received but rejected later the chief disabilities were middle-ear disease and defective vision. Tubercle claimed a rejection ratio of 4·3 per 1000 on first examination and 0·28 later; in 1914 the figures were 2 on first examination, and 0·14 later.

Hygiene.

The great difference between the present report and those that preceded it lies in the changed outlook. Former reports told of events passed, here aims for the future are suggested. The hygiene of the army is being systematically assured. Commanding officers are responsible for the sanitary condition of the areas of their units, so they and their staffs must be educated. Consequently, courses of instruction for combatant officers and personnel are held at the Army School of Hygiene. Six lectures on hygiene are given each term to senior cadets at Woolwich and Sandhurst. Instruction is also given to all ranks at all stations. Junior officers of the R.A.M. Corps receive instruction at the College, and go through a practical course at the School of Hygiene. They take a senior officer's course at the College some eight years later. Officers and other ranks of the Corps who propose to specialise attend an advanced course at the College and Army School. There are deputy assistant directors of hygiene at important stations, assistant directors of hygiene are on the staffs of deputy directors of medical services of commands, and there is a director of hygiene on the staff of the director-general. Above all these is the Army Hygiene Advisory Committee, which has been in existence since 1919, on which sit representatives of the quartermaster-general's department and (since 1921) of the general staff. The objects of this new organisation are stated to be: (1) To bring under one directorate the hygiene specialist officers of the army. (2) To raise the standard of hygiene in the army, and to help it by fostering research. (3) To ensure that the welfare and health of the troops are carefully watched by officers who have made a special study of the subject, and thus not only improve the fighting efficiency of the army but effect a saving to the State by preventing wastage

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* Report on the Health of the Army for the Year 1921. H.M. Stationery Office. 1924. Pp. iv. + 99. 3s.

(*Continued from previous page.*)

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5. Frank: Berlin. klin. Woch., 1916, Nos. 27 and 41.
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9. Cramer, W., Drew, A. H., and Mottram, V. H.: Proc. Roy. Soc., B, xciii., 449.
10. Delrez, L., and Govaerts, P.: Travaux de l'Ambulance "Ocean," 1918, ii., fasc. 1, 209.
1. Bannerman, R. G.: THE LANCET, 1924, ii., 593.

from disease and physical inefficiency. Three reports of investigations under object (2) are mentioned in the report, but references to the places of publication would have been an advantage. In 1921, after considerable research, a new scale of rations was adopted, which might with advantage have been included in the report for the information of people who, in 20 or 40 years' time, may be examining these reports to decide what were the influences in 1921 bearing on some recently differentiated disease. Transports for troops have been considered, and space per man has been increased by 70 per cent. Barracks are being rebuilt and remodelled as funds become available; gas is being replaced by electric light in barrack-rooms; six linear feet of wall-space per man is required, as the necessity for this was brought forcibly to light during the influenza epidemic of 1918. Baths (shower, foot, and slipper) are being provided (probably with hot water, but this is not stated); cookhouses and dining halls are being improved, so that the serving of food shall be bettered, and that men may thus be induced to stay in barracks. More and better married quarters, better schools, and further improvements to hospitals will be provided as funds come in sight. Mother and child welfare schemes were undertaken at many stations; they were much appreciated, and admirably carried out. The disease that caused the greatest loss of service was *malaria*, with a ratio of cases of 99·8 per 1000 men, a death-rate of 0·27, and the rate of invalids discharged finally being 0·48. At Jenin, in Palestine, the number of cases was reduced by sanitary effort from 600 in 1920 to 2 in 1921. At Richon, in Palestine, *Anopheles maculipennis* was found to travel one and a half miles, for they disappeared when the suspected swamp one and a half miles away was drained. An increase of malaria in South China is ascribed to a long spell of dry weather. The Waziristan Force, with 1018·3 admissions to hospital per 1000 and a death-rate of 2·39, seems to have been the part of the army most severely attacked. *Venereal diseases* showed a maximum incidence in Constantinople (228·5 per 1000) and in Germany (169·2). The Eastern Command had the lowest rate with 36·0 admissions. The figures for the United Kingdom were 40·3 as compared with 74·0 for the whole army. The high prevalence in Constantinople is ascribed in this report (as in that of the Navy for the same year) to the multitude of unfortunate destitute refugees. Efforts are being made to reduce occasions of venereal infection by giving men greater comfort in their barracks, by sports and games, by education, by disciplinary insistence on notification and early treatment. Penalties imposed on men who contracted venereal disease did not win approval, and tended to concealment of the disease.

Disorders of the digestive system are a source of much distress to the young soldier, and are ascribed to his consuming too many sweet cakes and tea between meals. It is hoped to remedy this by better cooking and serving of meals, and by better dental treatment. We notice, however, that officers suffer from these diseases just as much as the men. Local injuries in riding schools, gymnasia, and on the football field cause great loss of service, and are being carefully watched with a view to prevention. *Boils*, which during the war were reported to be associated with deficiency of vitamin C, are specially prevalent in mounted corps, particularly if the barrack-rooms are over stables. *Sand-fly fever* gives rise to disability, but causes no deaths. The small-meshed curtain required to keep out the flies becomes intolerable in the hot airless weather when the insects are most numerous, and men will not sleep under them. The fever is most prevalent in Iraq, North (but not South) India, and in Egypt. *Influenza* was found to be best restrained by a preventive vaccine with streptococci, pneumococci, and Pfeiffer's bacillus. *Scabies* caused much loss of service, each of the 4900 cases averaging 11 days off duty. It was most prevalent in Germany, least in Iraq, and heavy at home, where there are more furloughs, with which its prevalence is officially connected. The Danish treatment of scabies,[1] which has shortened term in hospital by a half or even more, has now been adopted by the army.[2] One case of *actinomycosis* is mentioned in Ireland, and three of *encephalitis lethargica*. *Heat-stroke* came on at Basrah when the maximum shade temperature was 127° F.; 15 per cent. of the cases admitted alcoholic excess, and these all died; 18 per cent. were total abstainers and recovered.

Pathology.

An organisation similar to that described under hygiene, but wholly within the R.A.M.C., has been built up to study the pathology of the army; this trains workers at the College for the immediate identification of pathological conditions in order that early and accurate diagnosis shall allow effective measures to be instituted to curtail the spread of disease. Vaccines were made for the army at the College in 1921, and so, it is calculated, a sum of £20,000 was saved to the country by the R.A.M.C. An organised research was instituted on "catarrh," and *B. coryzæ segmentosus* was thereby brought specially to notice and added to the "anti-cold" vaccine, which thus had its efficiency, it is believed, increased. *Kala-azar* was found in two children in Malta, where many native dogs are infected with leishmaniasis. In the Rhine army it was thought that a small outbreak of *diphtheria* among bandsmen was spread by their instruments. *Vincent's angina* also occurred in that force, and 1125 cases out of the total force of 9870 were notified. American military surgeons, too, have noticed this infection in Germany. In Iraq a Pasteur institute was established at Bagdad. In this area anthrax, cholera, diphtheria, dysentery were of frequent occurrence. Leishmaniasis (Bagdad boil) is very common in native children. Malaria, plague, sand-fly fever, and bilharziasis were also common. Thus Iraq provided an interesting field for a pathologist. There were 11,544 men in the command and eight laboratories were provided.

Dental Treatment.

Dental treatment of the recruit began in 1906, when each otherwise fit recruit might have 20*s.* worth of dental work done on him if his dental condition thereafter would allow him to be accepted; by this method 1700 recruits were gained in 1907. Whole-time dental surgeons were required in the war, and were given commissions in 1915. At home during the war 70 per cent. of recruits required some dental treatment. An Inspector of Dental Services was appointed in 1918, and the Army Dental Corps was formed in 1921, to secure for the troops a high standard of dental service and thus reduce wastage. The dental officers were sent to the recruiting depôts. To simplify the grading of dental fitness points were given for all teeth in the upper jaw which were in good functional opposition to teeth in the mandible. Two points were given for each really sound molar, and one point for other teeth. Each tooth counted had to be sound or reparable. The maximum was 22, and no one whose total score was below 11 was received. During 1921, 82 per cent. of recruits required dental treatment and 81 per cent. of these got it. Lectures on oral hygiene are given to the troops; the new recruit is very readily teachable in this respect, and the majority of soldiers now clean their teeth daily. The proportion of teeth saved is continually rising; in 1920, 53 per cent. were conserved, in 1921, 59 per cent., while the number of extractions is falling. Scaling and treatment of infected gums and mouths are also done.

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[1] THE LANCET, 1920, ii., 1251.

[2] Journal of the Royal Army Medical Corps, March and April, 1924.

DEVONSHIRE HOSPITAL, BUXTON.—The sum obtained at a bazaar held recently in Buxton in aid of this hospital amounts to £8500. Money is still coming in, and the £10,000 necessary for the payment of the debt on the new extensions of the hospital will be realised.

INDUSTRY AND MEDICAL SCIENCE.

A WEEK-END CONFERENCE.

THE DOCTOR AND THE PSYCHOLOGIST IN INDUSTRY.

THE Institute of Industrial Welfare Workers held its annual Conference at Swanwick on Sept. 26th to 29th, when the above subject was discussed. Over 200 members were present, representing about 100 firms.

Dr. C. S. MYERS (Director of the Institute of Industrial Psychology) opened the discussion at the first session with a paper entitled

What Psychology Can Do for Industry.

He explained that the subject was too vast to treat as a whole, and he proceeded to describe certain points where psychology was actually doing valuable work for industry, illustrating his remarks with numerous lantern slides. Dealing first with the "work-curve," he described it as being as important to the industrial psychologist as a heart or pulse tracing is to the physician. After laboratory experiments on work-curves obtained under various conditions, similar investigation was carried out in certain factories and it was found that these curves were influenced by many factors. With practice, for example, a work-curve goes up while with fatigue it tends to fall, and if the curves be examined in detail other features become apparent. There is, for example, a definite spurt at the beginning of the day and a similar spurt at the end—spurts which are not necessarily conscious efforts. It was further found that if a person is taken away from his work for a short time he takes a certain period to "warm up" on his return. He passes through an "incitement" stage which is to be distinguished from the lower work-curves obtained after longer periods of absence from work which are due to lack of practice. By a study of a series of these curves it is possible to pick out those giving the best results and the work is then arranged accordingly. Dr. Myers next dealt with the influence of "rest-pauses." Work-curves were obtained showing higher levels after rest-pauses had been introduced. In one factory a 3 per cent. decrease in time worked, due to rest-pauses, led to a 5 per cent. increase in output. Pauses associated with change of work in another factory gave rise to a 14 per cent. increase in output and the workers were very appreciative of the better conditions. This aspect of the subject had been scientifically studied in the laboratory and the effect of varied occupation was strikingly shown. The "ease" of movement in occupation was next discussed. Too much stress in the past has been laid on the speed and extent of movements in mechanical tasks, but it had now been shown by experiment that "ease" of movement is the important factor. In one investigation an increase of output amounting to 35 per cent. had been attained simply by enabling certain work to be done with greater ease, and the workers themselves were struck with the lessened fatigue felt at the end of the day. Quality of work is also an important subject, and investigations had been carried out as to the reasons for spoilt work. In connexion with certain tea-shops breakages were markedly reduced (a 70 per cent. reduction in the breakages of cups, for example) by a study to ascertain how, why, and where breakages occurred followed by remedying of certain defects in the system of waiting. With reference to fatigue it had been discovered that the greater the skill of a worker at a particular job the less fatigue he experienced, and this was largely due to the fact that in the case of the less skilled worker "rhythm" breaks down earlier. Although it has frequently been shown that moderate decrease in working hours led to an increased output, the effect of excessive decrease in the number of working hours was to diminish the hourly output. This, it was suggested, is possibly due to loss of "incitement" caused by a long period of absence from work, over, for example, a long week-end. In observing the effect of decreasing the hours of work on the work-curve the results are not always immediate, often as much as three months is necessary to get the full effect. Dr. Myers next dealt briefly with vocational psychology, showing the importance of psychology in vocational guidance —choosing the best job for the individual; and in vocational selection—choosing the best individual for the job. Tests for special and general intelligence could be combined with the usual interview.

An interesting discussion followed in which the importance of the welfare workers who live in the atmosphere of the factory and in close touch with the workers themselves was emphasised.

At the second session Dr. W. F. DEARDEN opened the discussion on

What Medical Science Can Do for Industry.

He pointed out that we had reached a stage where manufacturers were at last beginning to realise what medical science can do for industry. The war had hastened this state of affairs, for the importance of the health of the worker in relation to output had been forcibly realised in connexion with munition work. Despite this the full significance of what medical science can do for industry has not been completely grasped, and the force which industrial welfare can exert will greatly help in driving this home. Dr. Dearden said that the foundations of the relation of medicine to industry were laid 200 years ago by Ramazzini, of Padua, who held very definite views which he expounded in a famous treatise. This Italian doctor had in his mind several basic principles which still held at the present day. He understood that the worker must be studied as a human machine, he realised the importance of cleanliness and ventilation. A century elapsed before his work was supplemented and nearly two before industrial hygiene became a properly defined branch of medical science. The study of the human machine could be undertaken by the physiologist and by the pathologist. The physiologist has to discover how bodily powers react to occupational conditions, and by suitable adjustment of these conditions he gets a maximum of output without waste of energy. Fatigue in its physiological aspect must also be dealt with so that no energy expended is unproductive. In the present position of trade the medical profession had a very definite function, and it can do its share towards putting industry on its feet. Dr. Dearden referred to the results of the advent of the industrial physician in America, where special courses of training exist for this branch of medical science. While industry is not quite on the same plane in this country it appears, nevertheless, that purely from an economic aspect industrial medicine, if properly applied, could bring about a tremendous annual saving. Dr. Dearden quoted Prof. E. L. Collis, who assesses the total possible saving to industry at £140,000,000 a year. The pathologist studies the morbid effects, local and general, brought about by fatigue. By the scientific study of industrial diseases, such as anthrax, for example, he has in the past done a great deal to cut down the incidence of these disorders. Ramazzini insisted in his book that the health of the workers must be studied in the workplaces themselves, and the fact that the earliest factory inspectors appointed in this country included a medical man was a very important one. With the advent of the certifying surgeon there was an increasing tendency to regularise employment according to physical fitness and the returns of these surgeons showed a gradually increasing percentage of rejections since they were introduced. The certifying surgeon acquires a great deal of knowledge of the factory and the processes carried on which should help him considerably in cases he has to deal with under the Workmen's Compensation Act. Dr. Dearden referred to the valuable work done by the medical inspectors of factories, and regretted that there were so few to do the large amount of work on industrial hygiene which was necessary. He urged that the State should employ more. Employers had their obligations, moral as well as legal, with regard to welfare work, and they had already done a great deal. He pleaded for a greater uniformity in the examination of young persons, and suggested that entrance and periodical medical examinations were desirable. The question of the examination of adult workers was more controversial, but it would be a great asset to have a health record of all the workers as long as this did not arouse suspicion amongst them that an entrance medical examination, for example, would have a deleterious influence on their engagement. Dr. Dearden pointed out how the hygienic requirements of the workers had been studied by medical science in relation to cleanliness, ventilation, humidity, lighting, and such like. He concluded by emphasising the importance of a knowledge of the occupation of a patient to his doctor, and urged that industrial medicine be made a compulsory part of the medical curriculum.

In the discussion which followed, the importance of the medical supervision of all workers and especially of adolescents was emphasised, and a plea was urged for a more satisfactory linking up with the school medical service.

At the third session the subject for discussion was

Accident Prevention: the Psychological and Physiological Aspect,

and this was dealt with from the *psychological aspect* by Dr. Millais Culpin. He began by pointing out that to say that accidents were due to carelessness, inattention, and so forth, did not go deep enough. There are certain people who are particularly susceptible to accidents, and this personal factor should be investigated to see what particular characteristic was associated with this susceptibility. Dr. Culpin then described the heterogeneous group of so-called "nervous" diseases, including neurasthenia, nervous breakdown, &c., and pointed out that common as these complaints were they rarely received investigation, although half an hour's talk would often clear up the trouble. That the "anxiety neurosis" may be associated with the occurrence of accidents was strikingly shown by a description of several cases where a definite pathological fear was present in individuals to whom or through whom accidents occurred. Dr. Culpin said that in the investigation of accidents, the expert psychologist was seldom called in, yet his evidence would be most helpful. The fear or anxiety present in these cases was not necessarily conscious, and he quoted a case in which unconscious remorse had led to the "self-infliction" of an accident in a perfectly unconscious manner. The presence of psychoneurotic symptoms in certain workers should lead one to suspect that they are susceptible to accidents, and welfare workers could help greatly by gaining the confidence of these people and listening to their troubles. Certain characteristic cases were mentioned, such as workers who cannot bear being watched, workers who are afraid of their machines, workers who rush at their jobs, and such symptoms should suggest to the intelligent welfare worker that these subjects required helpful treatment.

Dr. H. M. Vernon (Industrial Fatigue Research Board) next dealt with the *physiological aspect* of accident prevention, and he stated that accidents could be largely prevented by maintaining the workers in the best of health and under the best factory conditions. This is somewhat difficult to prove, but certain aspects had been particularly investigated. The importance of lighting was one example. Accidents were more common in factories during the winter months when artificial lighting had to be used more than in the summer. In America three times more accidents occurred on night shifts than on day shifts in one large steel yard, although factors other than lighting probably entered into consideration. The question of fatigue was an interesting one. Does the moderate fatigue of the ordinary day's work predispose to accidents? It was found that the frequency of accidents increases gradually during the day, and another factor in this connexion was probably the boredom experienced towards the end of a day's work. Lack of experience was another potent cause of accidents, and Dr. Vernon suggested that a period of training on fool-proof machines might prevent this. The speeding-up of production increased the occurrence of accidents both because quicker movements were generally clumsier and because increased speed gave rise to increased fatigue. Temperature was another factor: a certain optimum temperature—in one factory 69°—showed a minimum occurrence of accidents. Below this cold entered into the problem and acts by decreasing manual dexterity, while excessive heat probably acts indirectly and is partly psychological. The effect of the introduction of a cooling plant at the bottom of a mine in Brazil was cited as a striking example of the importance of correct temperature. Humidity was also important, especially in coal-mines where it was usually excessive, and where the ventilation in general was shockingly bad. The comfort of the worker demands attention, for the uncomfortable worker is more liable to accidents, and in this connexion the question of clothing, the provision of changing and bathing accommodation were all discussed. Lastly, Dr. Vernon referred to the general health of the worker and its relation to accident occurrence.

A good discussion followed in which other points, such as the presence of excessive dust on the floors of factories and the state of untidiness, were mentioned as prevalent causes of accidents.

General Discussion.

At the fourth session a general discussion of the subject took place. Mr. F. N. Epworth opened from the employer's point of view. He welcomed the advent of the psychologist in industry, but pointed out that progress must be gradual. Welfare workers can help by preparing the ground. This is very necessary, as innovations are viewed with distrust by the employer and worker alike. With regard to the doctor in industry, Mr. Epworth gave his experiences which, he said, had been unfortunate. He complained that the medical officer often only came near a factory to collect his fees, that he never saw the work being done, and he often never saw the workers he was supposed to examine. He strongly supported the suggestion that doctors should get to know the actual conditions of factory work.

From the workers' point of view, Miss Irene Pickup (Messrs. Rowntree) explained that psychology was not popular with the workers. They did not understand it, and they were prejudiced against it, associating it with "speeding-up" and "increased output" and other phrases of American origin which are cordially disliked. It was difficult for the worker to understand that the psychologist came into industry to help him. Miss Livingston spoke from the welfare workers' point of view, and said that the psychologist was most welcome because he could put a scientific case for decreased hours, rest-pauses, &c., and he helped to convince the employers. She was disappointed that no mention had been made of what medical science could do for industry in the future, for example, in dealing with such conditions as anæmia, gastritis, headaches, and neurasthenia, all of which were widely prevalent in the factories. Dr. M. G. Sheldon (a works' doctor) expressed her opinion that many of the disorders mentioned above were the result of faulty habits among the young workers, and could be reduced by educational methods. Dr. Culpin pointed out that so-called gastritis might be the physical manifestation of a neurasthenic condition, and pleaded that fears and grumbles among the workers called for just as much attention as accidents and anthrax, for example.

Numerous speakers gave interesting contributions from other points of view.

THE INTERNATIONAL DENTAL EXHIBITION.

THE International Dental Exhibition, which closes to-day (Friday), was opened at the Imperial Institute, University of London, South Kensington, on Sept. 29th, under the auspices of the Incorporated Dental Society. While the exhibition enabled the individual dental practitioner to keep himself in close touch with the latest improvements, methods, and equipment pertaining to his calling, it demonstrated at the same time the admirable response made by British firms to the demands of a specialty which plays so important a part in preserving the health of the people. During the week a series of lectures were given on various techniques and mechanical processes connected with dentistry and its practice. An important conference was also held at which the relation of the dental profession to the National Insurance Acts was discussed in all its bearings.

The Exhibits.

Two of the largest exhibits were those of Claudius Ash, Sons and Co., Ltd., 5–12, Broad-street, Golden-square, London, W., and De Trey and Co., Ltd., of London, Melbourne, Paris, Milan, and Madrid. The double cylinder "Empire" chair of the first-named firm attracted a great deal of attention. It is beautifully made and finished in a variety of enamels and coverings, with spring-balanced back and non-slip locking device on the arms, and while comfortable for the patient is equally convenient for the operator. The exhibits of this firm included a large variety of artificial teeth, instruments, and all the paraphernalia that the dentist requires in his surgery. The stall of De Trey and Co., Ltd., also attracted marked interest by reason of the fine display of their well-known Anatoform teeth specially designed to enable the practitioner to minister to the æsthetic demands of the patient while giving him or her at the same time teeth of practical utility.

Another interesting exhibit was the "Rayway" dental combination, Norman Rayne, 48, New Cavendish-street, London, W., an entirely British chair unit comprising hot-air syringe, mouth lamp, cautery, root canal dryer, electric compressor, motor converter, and other devices which add to the speed and comfort of a dentist's work; while the Raylim dental X ray outfit, X Rays, Ltd., 11, Torrington-place, London, W.C.; the Sunic X ray dental equipment, Watson and Sons, Sunic House, Kingsway, London, W.C.; the dental cabinets of C. J. Plucknett and Co., Ltd., Poland-street, London, W.; and the perfectly balanced chair made by the Dental Manufacturing Co., Ltd., Alston House, Newman-street, London, were the centres of many inquiries.

The Midland Dental Manufacturing Co., Ltd., 1, Needless-alley, Birmingham, and Mount Pleasant, Liverpool, showed an ingenious instrument called the Rahinator, designed to convey Rahinol, an antiseptic and anæsthetic, to the bur while in use. It consists of an attachment containing a small heating coil, and a detachable internal cylinder for holding the fluid, to which is screwed a fine flexible tube for conveying the fluid drop by drop. Close by, at the stall of the Birmingham Dental Supply and Manufacturing Co., were to be seen dental equipments for the surgery in large variety, while special notice was invited by the wide display of dental requisites of Gould and Co., Agol House, Mount Pleasant, Liverpool, including their "Never-Snap Bristles." Kodak, Ltd. (X Ray Department), Kingsway, London, W.C., had an attractive exhibit of their photographic material for dental radiography, and Parke, Davis and Co., 50–54, Beak-street, London W., showed a very attractive assortment of hypodermic cases for dentists and also their well-known tooth-paste Euthymol. Among other firms displaying dentifrices were Kolynos Incorporated, Chenies-street, London, W.C., whose well-known dental cream, which is entirely free from grit, has the following formula: Calcium carbonate, 21·00; soap, 25·50; thymol, 0·25; benzoic acid, 0·30; saccharine, 0·50; oil of eucalyptus, 1·75; oil of mint, 1·90; glycerine, 27·00; alcohol, 21·80; the Pepsodent Co., 42, Southwark Bridge-road, London, S.E.; and the Crown Perfumery Co., Ltd., New Bridge-street, London, E.C., who showed Corodenta for dental plates and artificial teeth, and Crown tooth paste, which has a pleasant lemon flavour.

Space does not permit us to mention the whole of the 40 or more exhibits, most of which showed merit, and indicated by comparison with previous exhibitions the steady advance of dental science and practice.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Poor-law Medical Appointments.

THERE has been for a long time grave dissatisfaction with the manner in which Poor-law medical appointments are made by local authorities. Family influences, friendships, political considerations often weigh more than professional ability. In some instances there is said to have been corruption of a grosser sort. It has been rumoured for some time that the Ministry of Local Government was considering the advisability of taking the power of appointing medical officers from the local authorities and giving it to a central appointments committee constituted mainly of representatives of the medical educational bodies. Such a plan, though undoubtedly an advance on the present system, is not approved unanimously by the medical profession, which has long demanded a national medical service with admission by competitive examination. The Ministry has now decided to try its plan in an experimental way in the Dublin Union. The affairs of that union are at present administered by paid Commissioners, the board of guardians having been temporarily suspended from its functions by the Government. The Ministry has written to the Commissioners suggesting that it would be greatly in the public interest if the Commissioners could establish a special selection board to appraise the merits, qualifications, and experience of applicants for the four vacancies for dispensary medical officers. The Commissioners accepted the suggestion, and decided to invite the registrars of University College, Dublin, of Trinity College, and of the Conjoint Board of the Royal Colleges to appoint a representative, each to act as a selection board, with the chairman of the County Dublin County Council as chairman. The profession will watch the working of this experiment with much interest.

Medical Reform.

At the summer session of the National Association of Insurance Committees, held last week in Dublin, the subject of reform in the public medical services was discussed. A report was received from a committee which had been previously appointed to inquire into the working of national health insurance and medical services generally. Among the recommendations of the committees which were adopted by the Association were the following: That the present permissive health legislation be made mandatory on local authorities; that tuberculosis be included in the schedule of infectious diseases compulsorily notifiable; that power be given to the tuberculosis medical officer of health to compulsorily isolate persons suffering from tuberculous diseases in cases where he considered isolation essential in the interest of public health, also the effective inspection of cattle in respect of bovine tuberculosis, the tuberculin test of the milk-supply, the effective inspection of cowsheds, power to committees dealing with tuberculous disease to afford preventive treatment to persons coming under their observation who, although not actually suffering from the disease, were in the opinion of the medical officer liable to contract it. Suggestions were also made for the provision of treatment-training colonies for civilian patients whose pre-treatment occupations were especially unsuited to persons suffering from tuberculous disease and the provision of adequate housing accommodation, and the making and enforcement of regulations against overcrowding.

The committee were in favour of the abolition of the Medical Charities Act, and recommended in substitution therefor the extension of medical benefit to insured persons and their dependents, the preparation of a register of persons whose lack of means or whose occupation rendered them ineligible for inclusion in the insured medical benefit scheme, power to the local health authority to employ district nurses or enter into arrangements with existing nursing associations, and to make available the services of district nurses in connexion with the various county health schemes.

Dr. Patrick T. McArdle has been elected Master of the National Maternity Hospital, Dublin. For some years he had been Joint Master along with the late Sir Andrew Horne. He is also gynæcologist to Jervis-street Hospital.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal statistics for 1923 of four county boroughs :—

Name of county borough.	Estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population. All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Death-rates per 1000 births. Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Oldham.. ..	147,500	17·8	16·0	1·2	1·3	4·6	45	112	5·0
East Ham ..	146,200	19·4	9·0	1·1	1·0	1·6	25	51	3·5
Huddersfield .	111,600	15·7	12·6	1·2	1·5	2·6	39	72	6·3
Warrington ..	78,910	22·4	11·0	1·4	1·0	2·7	26	75	7·3

Oldham.

Dr. J. B. Wilkinson says the past year will be notable for the beginning of a scheme for the clearance of the largest slum area in the town—viz., Smethurst-street area. This area, which has been regarded as insanitary for 20 years, covers 4·9 acres and contains 259 houses and a population of 1425 persons. On the other hand, it is difficult to see how rapid progress can be made, as, owing to house shortage, dilapidated and unfit houses cannot be closed. No municipal houses were erected during the year and the 42 completed by private builders are all of too large a type for the artisan population. The scarcity of houses enables those who engage in the trade of letting furnished rooms to charge exorbitant rents. Dr. Wilkinson gives one example of a derelict inn, let by the owners for £40 per annum, which yields a total annual rental for so-called furnished rooms of £408. The rents for the furnished rooms are paid in advance or the tenants are turned out. "In some cases which have come to my knowledge," says Dr. Wilkinson, "the rents have had to be obtained by immorality to avoid ejectment." The depression in the cotton and iron trades has interfered with the progress of the schemes for the substitution of water-carriage for pan-closets and ashbins for ashpits, but notwithstanding adverse circumstances a considerable amount of work in repairing property and remedying defects has been carried out.

During the year the Oldham and Rochdale corporations acquired the reservoirs of the Rochdale Canal Company; Oldham's share of the purchase includes two reservoirs and 1645 acres of gathering ground, and will eventually render available for domestic use over 2 million gallons of water per day. The renovation of the sewage works has provided some work for the unemployed. About two-thirds of the conveniences in the town are waste-water closets, and the cleansing superintendent's report shows that this class of closet gives a great deal of trouble through its liability to become blocked. There were no less than 5445 blockages cleared in 1923. None of the "graded" milks is on sale in Oldham, but two firms do a large business in "cleaned, sterilised, and bottled" milk. Dr. Wilkinson draws attention to the small number of females who seek treatment at the V.D. clinic for gonorrhœa. At the Oldham Royal Infirmary clinic there were only 19 females to 140 males under treatment for this complaint during 1923, and yet, as Dr. Wilkinson says, gonorrhœa "is the origin of a very large proportion of ailments from which women suffer." Antenatal work makes slow progress. There were only 61 cases at the clinic during the year and the births in the borough numbered 2617. Midwives notified 1946 births, and sent for medical aid in 289 cases. The usual fee charged by midwives is 35*s*., and occasionally the fee is £2.

East Ham.

Dr. W. Benton says a great deal of repairing work has been carried out at the instance of the sanitary inspectors, but that "in the Little Ilford ward many people are living under unsatisfactory conditions owing to the urgent need of further housing accommodation in the borough." East Ham has no maternity home, but the council occasionally pay for the accommodation of patients in homes at Plaistow and West Ham at the rate of 7*s*. per day. Six cases were so dealt with during 1923.

The school report indicates many needs, though Dr. Benton tells us that the pseudo-economic barrier is gradually disappearing and that the advantages of preventive and early curative treatment are becoming more generally recognised by the education committee. Dr. Benton describes the scheme which has been adopted for coördinating the municipal medical services. The committee has now decided to abolish the obsolete desks to which Dr. Benton drew attention in his 1912 report. Verminous conditions have not improved; in fact, the number of children with head vermin was greater in 1923 than in any of the three preceding years. The aural surgeon, Dr. G. C. Chubb, points out that half the ear cases are sent to him for deafness and half for discharging ears, and that among the latter group it is chiefly a question of preventing serious complications, as only a few show "marked improvement in hearing." He goes on to emphasise how much easier is prevention—by maintaining clear nasal passages and by dealing with infected adenoids and tonsils. The accommodation for the school dental clinic is again reported as very unsatisfactory and the dental staff is quite inadequate to deal with the needs of the children. Arrangements for the education of physically defective children are badly needed. Thus there were 552 such children in 1923 "for whom no adequate treatment, either in the form of an open-air school or a physically defective centre, has been carried out with the exception of the 26 children admitted to the Ogilvie School of Recovery at Clacton-on-Sea." The arrangements for dealing with mentally defective children are also inadequate.

Huddersfield.

Dr. S. G. Moore reports that 233 new houses were completed during the year, 98 by the corporation and 135 by private enterprise. Of the latter 97 were suitable for members of the artisan class. During the five years previous to 1914 the average number of new houses completed annually was 320, but during the five years preceding 1920 the number dropped to 47. The corporation have a scheme for building 1500 houses, and have built or nearly completed 600 during the last five years. In March Mr. John McKinna, F.R.C.V.S., was appointed veterinary inspector to the corporation. Of 53 samples of milk submitted for bacteriological examination, seven caused tuberculosis in guinea-pigs. This may be an under-statement of prevalence, as 30 of the 106 guinea-pigs inoculated died from blood-poisoning before the period necessary for the development of tubercle had elapsed.

No applications for selling "graded" milk have been received. A case of mixed milk deficient in fat led to the taking of samples from individual cows in the herd. The mixed milk of the herd on Feb. 15th showed a deficiency of 6·6 per cent. of fat, and the milk of three individual cows showed deficiences of 10 per cent., 20 per cent., and 40 per cent. respectively. The matter was ultimately referred to Mr. McKinna, who took a sample of the mixed milk on May 28th, which was found to contain 4 per cent. of fat and 9·25 per cent. of non-fatty solids. Midwives attended 721 of the 1728 births alone and 530 with a doctor. In 148 of the latter the midwife summoned medical aid, and in the remaining 382 instances the doctor was engaged beforehand. Huddersfield has no antenatal clinic, but has had in operation since 1916 a voluntary system of notification of pregnancy. Each expectant mother is visited and revisited as necessary by women doctors employed by the corporation, and the same practice is observed with notified births. The notifications of pregnancy received in 1923 numbered 579, or about one-third of the total births. Three home helps are employed to take over the household duties in the homes of maternity cases, and also two charwomen for washing and heavy cleaning. One pavilion of the Mill Hill Sanatorium for Infectious Diseases is equipped as a maternity ward of 12 beds, and receives cases when the home accommodation is unsuitable for the confinement.

Warrington.

Dr. G. W. N. Joseph tells us that the housing subcommittee select their tenants almost entirely on the urgency of the hygienic conditions under which the applicants are living. At the end of 1923 the waiting list of applicants numbered 1575, including 738 living in overcrowded houses and 171 mostly employed in Warrington, but unable to live there owing to the house shortage. Dr. Joseph gives particulars of the weekly rentals of the corporation houses :—

Wooden huts, with two bedrooms, kitchen, scullery with copper, larder, coal store, and w.c. ; 20 at 5*s.* 6*d.* + 4*s.* rates ; 20 somewhat smaller at 5*s.* + 2*s.* 4*d.*

Six concrete houses (on Dorman Long system—cost £850 each) at 9*s.*+6*s.* 1*d.* rates. These houses have sitting-room, kitchen, scullery, larder, coal place, and w.c. on ground floor, and three bedrooms and a bathroom on first floor.

Brick houses : 39 "Type B" with accommodation similar to Dorman Long houses, 9*s.* 6*d.*+7*s.* 4*d.* rates ; 17 "Type A"—i.e., without the sitting-room, at 8*s.* + 6*s.* 1*d.* rates ; 73 "Type A"—19 end houses at 13*s.* 11*d.*, and 54 inner houses at 12*s.* 11*d.*, both inclusive of rates ; 12 "Type A," completed last year, at 12*s.* 11*d.* inclusive.

There are still a considerable number of houses in the borough which ought to, but cannot, be closed. Seventy-two tenants of corporation houses have received permission to take lodgers. Much irritation is provoked among homeless people by the sight of empty houses retained empty "for sale with vacant possession."

The accommodation at the maternity home was much appreciated. There were 256 admissions, and additional accommodation is needed. Three Cæsarean sections were performed ; all the mothers made good recoveries and there were two living children. Provision is needed for the treatment of surgical tuberculosis. The new recreation hut at the sanatorium for pulmonary tuberculosis was completed during the year, and has been provided with a first-rate billiard table, a piano, a gramophone, and seating accommodation through the generosity of Lady Greenall. Ten patients were treated with tuberculin, but the results were not encouraging. Patients who give a history of chronic nasal catarrh are inoculated with stock anti-catarrh vaccine. Several tuberculous abscesses have been successfully treated by aspiration, injection, and exposure to sunlight. Dental treatment is only available for ex-Service men. Of 84 samples of mixed milk, representing the milk of 1200 cows, no less than 10 were found to contain tubercle bacilli. As the result of following up, eight cows which were giving tuberculous milk were found and dealt with.

SCHOOL MEDICAL SERVICE.

Leicestershire.

Dr. T. Robinson reports that the elementary school population here is about 36,000, and of these between ten and eleven thousand were medically examined, and 11·6 per cent. were found to require treatment. Dr. J. B. Dalton, the assistant school medical officer, reports that the number of children with enlarged tonsils and adenoids has decreased. He finds that parents questioned six months after the operation are of opinion, with few exceptions, that there is an improvement in the "physique and alertness" of the child. From the teacher's point of view the results have, on the whole, not come up to expectation. No numbers are given, but "the following up of cases of tonsils and adenoids operated on shows (*a*) general physique is first to benefit by the removal of these defects, (*b*) mental capacity is slower to benefit and is not so marked as in the case of bodily physique."

Northampton.

The borough medical officer of health here is now school medical officer in charge with one assistant and a whole-time school dentist, who acts after school hours as dental officer to the maternity and child welfare section. Most of the work dealt with during the year by the public health department, owing to the changes in the staff, has been of a routine character. Dr. J. D. McCrindle urges the necessity for open-air education. "There are many debilitated, anæmic children, often under-nourished, who readily fall victims to subsequent tuberculosis or other communicable disease who can get little real education in the ordinary school, and, apart from the effect on their health, public money is wasted in the attempt to educate them thus." Dr. J. H. Mason, assistant school medical officer, pleads for special classes for dull and backward children for whom at present no provision is made. He also deplores the tendency to widen the scope of special schools for mentally defective children by admitting low grades of mental defect. Altogether, between five and six thousand children were examined ; 3000 of these were routine examinations, and nearly 19 per cent. required treatment for physical defects apart from dental condition.

Northamptonshire.

The school medical work was much interrupted here owing to changes in the staff. Dr. C. E. Paget, who succeeded Dr. J. H. Mason as school medical officer in May, 1923, reports that the result of the appointment of a whole-time demonstrator of physical training is becoming apparent in the improvement and modernisation of the physical training methods now in use in both day and evening schools. Classes for teachers are being held throughout the county. The total number of children examined in the code groups was 2420 of a total school population of 27,646. Cleanliness amongst the children seems to have increased. Dental defect appears from the figures to have increased, but the group examined was aged 6 to 8 years, always a period when dental decay is more prevalent.

Scarborough.

It is pleasant to record that Seamer-road Nursery School is again recognised by the Board of Education. While this school was receiving no grant certain kind individuals in Scarborough supported it entirely out of their own pockets. The number of children on the school register at Seamer-road is 62. At the Friarage nursery class there are 74 children. Dr. C. J. W. Tatham is firmly convinced of the real value of these schools, and suggests that though in their present form they are expensive, the nursery school ought to be developed. The school clinic is utilised twice a week for infant and child welfare work, and the school medical inspector is in attendance. The total number of attendances during the year was 3498. Ringworm of the scalp occurred in 44 children, as against 35 in 1922, a larger number than is common in other areas with a similar school population. Dr. Tatham suggests that possibly ringworm attacks fair-haired oftener than dark-haired children, and that this larger number is due to the higher percentage of fair-haired children on the north-east coast than in other parts of England. Of children recommended for dental treatment 82 per cent. obtained it. There is no doubt that the high percentage of clean mouths got in this way will materially reduce the number of victims of toxic diseases, such as rheumatism, in later life.

Stockport.

Altogether 7398 children were examined, and of the 4759 who came under the code groups 25·6 per cent. were found to require medical treatment. At the central school clinic, open daily, and a branch clinic, open once a week, nearly 12,000 attendances were made by just over 3000 children. Children in Stockport are recommended for free meals by the school teachers, attendance officers, and medical officers. The children attend for breakfast and dinner five days a week, on Saturday they have dinner only. The average number of children attending the leading centres for meals was 80. In 1922 it was 103. Dr. A. G. Jenner reports that the food is appetising and much appreciated by the children; the cooking and serving are also good.

Torquay.

A marked reduction in the amount of uncleanliness, with a similar decrease in the number of cases of skin disease, is recorded. Dr. T. Dunlop states: "For the first time since the war these diseases would now seem to be completely under control." There were 42 cases of ringworm, 36 of these being scalp affections. These were treated to such purpose with calomel and iodine that only four cases remained on the books at the end of the year. Attendances were not lost, as all those children attended school wearing washable caps provided by the authority. Arrangements have now been made for ringworm cases to obtain X ray treatment at the Torbay Hospital when necessary. A register of all dull and backward children is kept, and the children carefully examined as to mental and physical condition. It is unfortunate that for financial reasons the very necessary scheme for starting a class for these children at the open-air school has had to be abandoned. Dr. Dunlop gives credit to each of his assistants for their separate contributions which comprise the full annual report.

Warwickshire.

Much useful work is being done in the 31 voluntary infant welfare centres. During the year 23,435 attendances of children between 1 and 5 years of age were made at these centres, and a total of 17,762 examinations of school-children were made. The services of an additional dentist have been secured, and it is now hoped that dental treatment will be available for all children of from 6 to 8 years of age. Medical inspection during the year has revealed the necessity for an immediate increase in the accommodation in many of the schools in the more populous parts of the country. The strength of the health visiting staff was reduced by two in 1920, and Dr. A. Hamilton Wood suggests that a return to the former strength of 17 instead of 15 as at present is desirable. The standard of physical training in this county has improved largely owing to the increased interest among teachers in this branch of the work. Mr. P. R. Marsh, the county organiser of physical education, refers to the unsuitable clothing and footgear worn by so many of the children during games and drill. It would be more pleasant if this report were published in a form less unwieldy.

West Riding of Yorkshire.

The area of the West Riding for purposes of elementary education consists of over a million and a half acres, and has a school population of nearly 193,000. Dr. J. R. Kaye says: "The school population is altering slightly in distribution. The development of the coalfields around Doncaster is causing an influx of population to this district, and throwing some strain on existing schools." He is concerned, too, about the housing needs of this area, which are not being adequately met. Another matter which is also causing great concern is the inadequacy of specialist staff here. "The growing arrears of children who have been recommended for further examination of the eyes with a view to getting glasses cannot be contemplated with equanimity . . . . the problem facing parents of these children is of some magnitude; railway fares and refreshment, loss of a day, cost of getting someone to look after the children remaining at home, and if, as not infrequently happens, the examination is not completed and the prescription for glasses issued on the first visit there it has to be repeated." Truly, the penalties for living in the rural districts of the West Riding are absurdly heavy. Dental treatment also in many districts is unavailable. Although it is evident that the demand for these amenities may require stimulating in a county where "the head teacher instituted a sewing class in which the girls under the head teacher's dictation replaced safety-pins and other emergency devices on their own clothes by buttons, tapes, or hooks-and-eyes, and the parents took them off and sent the girls back to school without them!" An investigation was made by Dr. G. W. Fleming into the question of malnutrition in the Wakefield area. He worked on a weight and height ratio. Taking 2000 children he found that 30·8 per cent. were 10 per cent. or more below the average. A fairly large percentage was undersized while retaining the weight-height ratio. The malnutrition found is attributed largely to an ill-balanced diet which is deficient above all in accessory food factors or vitamins. The report also contains an interesting article on "arrested caries." It is unfortunate that the general medical profession in the West Riding coöperates so little in this preventive work. Indeed, occasionally the school medical service has had to face not only a lack of coöperation, but an attitude which Dr. Kaye describes by stating that "it would be going too far to suggest it was wilful obstruction."

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 20TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 53; scarlet fever, 1688; diphtheria, 886; enteric fever, 103; pneumonia, 449; puerperal fever, 38; cerebro-spinal, fever 8; acute poliomyelitis, 29; acute polio-encephalitis, 3; encephalitis lethargica, 39; typhus fever, 1; trench fever, 1; dysentery, 5; ophthalmia neonatorum, 132. There were no cases of cholera or plague notified during the week. The case of typhus was again from St. Helens.

Deaths.—In the aggregate of great towns, including London, there were 6 deaths from enteric fever, none from small-pox, 8 from scarlet fever, 21 from diphtheria, 7 from measles, 21 from influenza. In London itself the diphtheria deaths numbered 8 and the deaths from infantile diarrhœa 28. Another death from typhus was registered from St. Helens.

METROPOLITAN HOSPITAL.—The Metropolitan Hospital, Kingsland-road, which has 137 beds and ministers to the needs of one of London's poorest districts, is making an appeal for £50,000 in order to build a nurses' home and improve the casualty department. The Lord Mayor, Sir Louis Newton, President of the hospital, and Lord Howard de Walden, chairman, are organising the appeal, and special efforts will be made on behalf of the hospital in the district in which the hospital is situated, in the City, and in the West End.

Correspondence.

"Audi alteram partem."

WORKING FOR PROMOTION.

To the Editor of THE LANCET.

SIR,—The Director-General of the Army Medical Services is Sir William Leishman, professionally a bacteriologist, whose name has long been in the minds and mouths of the profession as the author of the Leishman stain and the discoverer of leishmaniasis, widespread throughout the world but unrealised until, like America, it was discovered. The Surgeon-General of the United States Navy is also a bacteriologist, Rear-Admiral E. R. Stitt, whose handbook is on the working bench of every laboratory. Thirty years ago we may fairly imagine these two young officers hard at work and indignantly commenting to their intimates on the neglect—opposition maybe—of superiors who could not realise the importance of the new science these young officers were learning and hoping to turn to profit for the Service. They did not sulk or throw up their hands and cease work as men with less conviction have been known to do. They stuck to their guns, their guns saved them, and now everything is in their power. There are junior officers now who feel neglected. Many of them have come from medical schools, where their talent soon began to shine out in that small, almost home-like area. They are now in a world which takes people to its heart slowly. Many of the juniors can dress their windows well, but which of them has the well-stored warehouse and can go on delivering the goods? It is for him that the Services are continually on the search. Who can say whether directors-general, 30 years hence, will be chosen from administrators, bacteriologists, operating surgeons, electric specialists, or some other branch, perhaps now unknown? One thing alone is certain. These prizes will not be for men who have drifted. Advancement will come to the man who does the work his abilities make him think the most important, does it thoroughly, does it hard, and does it long. His qualities must be proved in the furnace of affliction, or at least of strenuous opposition. But good work, done by an unselfish man with sympathy and helpfulness to those who are his associates, will rarely fail of its reward.

I am, Sir, yours faithfully,

Sept. 29th, 1924. OLD FOGEY.

THE TISSUE PATHOLOGIST.

To the Editor of THE LANCET.

SIR,—The letter of Dr. E. H. Shaw in your last issue reminds some of us of the days when the keenest minds amongst the young consultants were interested in the microscopical appearances of diseased tissues. Many improvements have taken place since then, both in the preparation and interpretation of histological sections, but it is still difficult sometimes to distinguish between tuberculous and syphilitic changes or to estimate the various degrees of malignancy presented by tumours which are on the border-line. The suggestion, therefore, of preserving, classifying, and cataloguing sections of doubtful nature is very valuable if it could be put in practice. It does not seem likely that any of the corporated bodies would devote time, space, or money to such an object, but it could well be begun in a little way as a beginning if someone would undertake the initial expense of a small laboratory attached preferably to one of the research associations which are at present doing good work.

Yours faithfully,

D'ARCY POWER.

Chandos-street, Cavendish-square, W., Sept. 29th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—Your favourable endorsement of the Derbyshire dental dresser scheme, which appears in THE LANCET for Sept. 20th, will be read with mixed feelings by many of your dental readers. For my own part I am definitely opposed to this scheme, and I know that many other dentists are of the same view, while the British Dental Association has always opposed the proposals of Dr. Barwise.

The scheme is put forward chiefly on the ground that there is a shortage of dentists. Is this a fact? As a teacher at a dental school I am in touch with a large number of recently qualified dentists, and I know that for every dental appointment, both part-time and permanent, there are large numbers of fully qualified applicants. This is the case even when the salary offered is below the standard which the British Dental Association regards as the minimum, and the advertisements for that reason are not accepted by the *British Dental Journal.* This does not look like a shortage of dentists. I suspect that the real reason is that the local authorities are unwilling to face the expenditure necessary to provide adequate treatment by qualified dentists, for in the abstract of the report of the school medical officer for Derbyshire there is the significant statement that "we cannot afford to employ dentists to do the necessary work, and if we could they are not available." With the assumption that there are not enough dentists available I have dealt. But even if the number of dentists increased, is there any likelihood that the Derbyshire authorities, or for that matter any other public bodies, would pay for the services of qualified dentists if they can get the work done by dental dressers under the supervision of a few dentists? It seems to me very evident that though this scheme is put forward under the specious guise of a temporary expedient, once it becomes established there is little chance of a reversion to the principle that dental work should only be done by qualified dentists, even although the number of the latter should be largely increased. In these days economy is a popular appeal, but cheap dentistry, like cheap medicine, is neither good for the dental profession nor for the public whose interests it exists to serve.

It is stated in the report of the Derbyshire scheme that there is no risk that these dental dressers might form a centre for the creation of a number of unregistered practitioners. When the scheme was first evolved by Dr. Barwise before the passing of the Dentists Act, 1921, the British Dental Association strongly opposed it partly on the grounds that it might provide a training ground for unregistered practitioners under public authorities. The passage of the Act has removed this danger for the present. It is, however, very significant that when the small amending Act of 1923 was passed conceding a reduction in the statutory age to certain ex-Service men, an attempt was made to introduce an amendment admitting these dental dressers to the prescribed examination established by the Dentists Act as an easy route to registration for those individuals who were practising without being registered. Can we be certain, therefore, that the danger has passed? In the event of any further amendments to the Act it is highly probable that were there in existence a large number of dental dressers carrying out work of the nature advocated by Dr. Barwise, that strong pressure would be brought to give them a legal status.

Already under the Mond scheme (Circular 1279) the Ministry of Health, in agreement with the Dental Board, has sanctioned the employment of dental nurses whose work is limited to cleaning and polishing teeth, applying or removing temporary dressings, and charting work under the direct supervision of the dental officer. But Dr. Barwise is not satisfied with this, and says bluntly that the employment of dental dressers under these conditions "is of no use to us." He presses strongly for permission for dental dressers to inspect and chart the mouth, to extract and treat temporary teeth, and to fill first permanent molars. In spite of the radiographs of fillings done by dental dressers and the testimony of various dentists, I am not convinced that this work can be satisfactorily performed as a routine measure by unqualified dressers. As dental surgeon to a large children's hospital, I am fully acquainted with the problems connected with the dental treatment of children, and in my opinion there is no branch of dentistry which calls for so much judgment and skill. Extractions even of temporary teeth and roots should in most cases be done under a local or general anæsthetic Is it suggested that the dresser should also do this? The filling of first permanent molars is a very important part of a school dentist's work, and yet it is suggested that this should be delegated to dental dressers "of matriculation standard" under the supervision, for what it is worth, of a qualified dentist. This is, indeed, putting back the clock of dental progress with a vengeance.

I feel certain that the dental profession as a whole will oppose these proposals of Dr. Barwise, and I trust that the Dental Board will not give their sanction to a step which I believe to be detrimental to the best interests of the public dental service.

I am, Sir, yours faithfully,

Wimpole-street, W., Sept. 24th, 1924. A. T. Pitts.

⁂ Mr. Pitts's reasonable claim that the dental profession can and should take over the whole responsibility for the teeth of school-children will be read with unmixed feelings of approval. At present the absence of such care in county areas is a menace to the health of the coming generation. For this reason it seems to us that any temporary expedient which is achieving good results should be regarded with indulgence.—Ed. L.

CHLORIDE METABOLISM IN RADIATION TREATMENT.

To the Editor of The Lancet.

Sir,—The paper on the above subject by Prof. A. T. Cameron and Dr. J. C. McMillan in your issue of August 23rd makes several references to work of ours recently published by you (The Lancet, 1924, i., 533), and we should be glad if you would allow us to make a few comments.

1. Cameron and McMillan make no reference to the normal variations in chloride metabolism, and they give the chloride excretion in their cases only for one or two days before the X ray treatment was commenced. Cases examined by us, in some instances for weeks before treatment was commenced, showed very wide variations in chloride excretion.

2. Three out of their five detailed cases were patients with gastric cancer. If the notable deficiency of gastric HCl in these cases be considered, it appears to us evident that the general Cl metabolism in similar untreated cases, or in such patients for a considerable time before treatment, would need to be analysed first before any reliable general deductions could be drawn as to the effect of radiation.

3. Their first two cases show very slight changes in chloride excretion—quite within the normal range of variation. Their third case had nausea but no sickness after salt feeding was started. The chloride excretion, however, remained low up to the twelfth day of such feeding. As the patient died three weeks after the last treatment it appears to us that no conclusions of value can be drawn from such a patient's terminal metabolic reactions. Their fourth patient had salt feeding, and no salt retention, and no sickness (slight nausea). This case would appear to us to be useful only possibly as a control. Their fifth patient frequently vomited after meals before the treatment began. (No analyses are given of the urine before the treatment.) He was worse after the second treatment; salt feeding was started, and was followed after five days by a sudden large chlorine excretion. That the coincident improvement in his general condition was due to the salt feeding, as the authors conclude, does not seem to us to be warranted, as improvement in any case might be expected a week after the last X ray treatment. Many more control examinations would seem to us to be necessary before the authors' conclusions can be substantiated.

4. They conclude, on the basis of urinary analyses, that there is "no production of acidosis." Blood analyses are essential for hydrogen ion and alkali reserve estimations. The authors do not refer to the valuable work of Whipple and others on this point, which our work seemed to confirm.

5. Our work was mainly done in the winter and spring of 1922–23, the literature was summarised to July, 1923, and our paper was submitted for publication before Cori and Pucher's paper on chloride retention had appeared. Hence no reference to it was made.

6. As to details of the X ray treatment given in our cases, where the word "intensive" was used that implied, as is generally understood, radiation with a tube activated at 160–200 kilovolts, and filtered with at least 0·5 mm. zinc or copper, and applied so as to administer approximately a "skin unit dose" throughout the area of evident or probable disease, including the associated lymphatics. We felt that full details of the 12 or so factors involved in X ray treatment would occupy more space than was justified in a non-technical paper. The X ray details given by Cameron and McMillan are indefinite. (What is meant by a "13 cm. port"?) The necessary factors are variable, or are not given. In considering metabolic changes the *essential* factor must be the "volume-dose," or "body-dose" as it has been called, the total of absorbed radiation. To give the dosage in electrical terms as milliampère hours, or otherwise indirectly as they do (e.g., 100 k.v. 4 mm. Al filter) gives neither an estimate of the superficial nor the depth intensities, from which the "volume-dose" (other factors also being considered) could be calculated. Correlation between "volume-dose" and metabolic changes would have so greatly enlarged the scope of our investigation (which was already taxing the limited resources of the biochemical staff to its utmost) that we had to leave this for future investigation by ourselves or others, and on a larger series of cases.—We are, Sir, yours faithfully,

E. C. Dodds.
J. H. Douglas Webster.

Middlesex Hospital, W., Sept. 24th, 1924.

THE DIAGNOSIS OF A HEALTHY HEART.

To the Editor of The Lancet.

Sir,—Dr. A. Graham-Stewart's letter in your issue of Sept. 20th seems to raise the old question of the correct definition of the term "functional." Taking simple paroxysmal tachycardia—Dr. Parkinson expressly excludes auricular flutter and fibrillation—to be merely a succession of extra-systoles either auricular or ventricular, a disorder in function of the heart would appear to be the best description possible for the condition. That extra-systoles themselves may have a prognostic significance when due to the irritability of fatigue in the presence of a definite cardiac lesion does not gainsay the fact that most people who suffer from them have nothing else to suggest heart disease. As Dr. Parkinson says, "These are not in themselves an index of heart disease, although they may occur along with it." Surely the same should be said of paroxysmal tachycardia, with, however, this additional factor in prognosis: that it does not do any heart good to beat for long at a rate of over 200. No one, of course, would apply the term "functional" to this condition in the sense that it is used by some neurologists in cases of hysteria and allied disorders.

I am, Sir, yours faithfully,

Harrogate, Sept. 24th, 1924. C. W. Curtis Bain.

CANCER AND SOME OF ITS SIGNIFICANT CHEMICAL REACTIONS.

To the Editor of THE LANCET.

SIR,—Cancer research during the past few years has been pursued with great diligence and has received considerable impetus from a number of different sources. In view of Sir George Beatson's most interesting letter, published in your columns of August 23rd, and also A. N. Currie's article on the Fat of Adipose Tissue in Malignant Disease,[1] a short account of the recent observations made in the Physiological Laboratory of King's College may not be out of place.

The large amount of yellow fat in the neighbourhood of a cancerous growth—e.g., in scirrhus growths, penetrating the tumour itself and incorporated with it, as pointed out by Beatson—is self-evident to those in the habit of dealing with such material. Further, Beatson[2] showed that a large percentage of this fat was unsaturated and suggested that the cause of the unsaturation was a local enzyme, which thus rendered the fat an easier pabulum for the growth. Currie, in his paper referred to above, shows that extractions of fat from healthy tissues have an average iodine value of 60·8, while those from fat adjacent to carcinoma have a value of 74·4. He also gives a feasible explanation of an oxidase-reductase system, which can readily be shown to exist in the connective tissue. This is in accordance with the well-known facts that adipose tissue is rich in a fat-splitting enzyme and in catalase.

Shaw-Mackenzie has shown that tissue lipolysis and utilisation of fats is defective in cancer. Furthermore, he suggested, so long ago as 1910, that the fatty acids, or their sodium salts, are important factors in the protective processes or induced resistance of the body. Rosenheim and Shaw-Mackenzie[3] showed that sodium oleate and other hæmolytic substances have the power of increasing lipolytic action; while cholesterol, on the other hand, inhibits the action of sodium oleate and other activators of lipase. Thus sodium oleate may not only be protective in itself, but may hold in check the inhibitory action of cholesterol in the body.

Whether the lipolytic deficiency, or the fact that the oxidase-reductase system is out of gear, or both these factors acting concurrently be the cause of the accumulated unsaturated fatty material in cancer is a question which further research will answer. That the oxidase-reductase system, a theory of whose mechanism Currie has outlined, plays by no means a negligible part receives support from the results of workers in widely divergent fields. Glutathione, discovered by Hopkins in 1921, and isolated by him from yeast cells and from various animal tissues, by virtue of its chemical structure, is a means of transport of hydrogen within the cell. Hopkins has shown that oxidation of unsaturated fats is readily catalysed by glutathione, and it can easily be shown, as Currie has done, that the tissues contain an oxidase. Further, von Fürth found in his work on the oil in the seeds of the sunflower and castor-oil plant that the changes which occur consist of an increase in saponification value and a lowering of the iodine value. The increase in saponification value indicates the formation of lower fatty acids from the higher ones; and lowering of the iodine value shows that the ethylene linkages have been destroyed during cleavage. A similar kind of action to that just described in the case of seeds takes place normally in the liver of a healthy individual. The higher fatty acids—e.g., stearic acid—are desaturated and cleavage occurs at the weak spot—viz., the ethylene linkage, giving rise to simpler fatty acids. Hence, it seems obvious that in cancer these reactions of desaturation and cleavage are in some way inhibited.

But the excess of unsaturation cannot wholly be explained in this manner. It has long been known that excess of lecithin occurs in the cancer cell. In addition to lecithin, the carcinoma cells are rich in cholesterol. Wacker has pointed out that the fat deposits in the subcutaneous tissues and mesenteries of persons suffering from carcinoma is no less than 66 per cent. greater in cholesterol content than the fatty deposits in normal persons. The iodine value of cholesterol is exceedingly high, and the large increase in iodine value which Beatson and also Currie have reported and which I, in collaboration with Shaw-Mackenzie, have also noted is probably due in no small part to increased cholesterol content. This increase in cholesterol content is not only found in the carcinoma cell and the neighbourhood of the cancerous growth, but extends to the serum of cancer patients. The increase in cholesterol in the serum is quite marked and has been exhibited in every case I have examined. Also preliminary qualitative experiments of bromine absorption in chloroform extracts of the serum indicate the increased unsaturation. This would be expected in virtue of the fact that cholesterol contains an ethylene linkage.

For the last 14 years Shaw-Mackenzie[4] has been working in this laboratory on the sera-diagnosis of cancer, and recently I have been inquiring into the chemical nature of the tests he has elaborated. Although, as yet, I have not succeeded in elucidating all the chemical factors, I am satisfied that there is evidence of increase of cholesterol in the serum of carcinomatous patients. It is not claimed that this is absolutely specific for cancer, but that it is sufficiently so to be of diagnostic value. It is not for me to discuss this aspect of the problem, but the foregoing evidence will justify the statement that there is considerable alteration in the metabolism of fats and lipoids occurring in the blood and tissues in cases of carcinoma. It must, however, be remembered that this increase in cholesterol may be primary, or that it may be secondary to the carcinomatous state, but as yet there exists no evidence that I know of pointing in any special direction, and unfortunately, it is a subject in which it is extremely easy to formulate hypotheses.

I am, Sir, yours faithfully,

H. GORDON REEVES, M.Sc., A.I.C.,
Department of Physiology, King's College, London.

Sept. 17th, 1924.

METASTATIC GAS GANGRENE.

To the Editor of THE LANCET.

SIR,—I was greatly interested in the case of metastatic gas gangrene reported by Mr. J. R. Learmonth in THE LANCET of Sept. 27th. About a year ago I had a somewhat similar case which I think is worth recording.

The patient was a male, aged 47, who had suffered from symptoms of duodenal ulcer for a considerable period. Operation was ultimately accepted by the patient after two severe hæmorrhages had occurred.

On opening the abdomen a large duodenal ulcer could be felt on the posterior surface of the upper half of the second part of the duodenum. The tip of the finger could be inserted with ease into the crater of the ulcer by invaginating the anterior wall of the duodenum. Posterior gastro-enterostomy was performed with some difficulty as the omenta were very fatty and the stomach small and high up. A rather badly damaged appendix was removed at the same time. Clamps were used in the anastomosis, but no undue traumatism occurred. For two days after the operation the patient was perfectly comfortable with no symptoms at all to cause the slightest anxiety; indeed, he promised to have a smoother post-operative convalescence than usual.

On the third day, about 56 hours after operation, he complained of a tight feeling in the right side of the chest, and two hours afterwards had a severe rigor. An examination of the chest revealed nothing at all. The temperature now commenced to swing and the pulse-rate to accelerate, and on the morning of the fourth day I found a small dusky area about the size of a sixpence on the front of the chest wall at about the level of the fourth costal cartilage and surrounding this a small area of slightly œdematous skin in which distinct crepitation could be obtained. Gas gangrene was at once suspected and with a syringe a few drops of serum were withdrawn in which the *B. welchii* could be demonstrated with ease. The area of œdema and discoloration rapidly increased in size and in 24 hours occupied a considerable area on the front of the chest. The abdominal wound remained clean and sweet throughout. The symptoms of intense toxæmia increased rapidly and in six and a half days from the operation the patient died, retaining his mental faculties until the end.

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[1] Jour. Path. and Bact., 1922, xxv., 214.

[2] THE LANCET, 1911, i., 1560.

[3] Jour. Physiol., 1910, xl., 8, 12.

[4] THE LANCET, 1922, ii., 759.

This complication of gastro-enterostomy was quite unknown to me and caused me much heart-searching in an attempt to explain its occurrence. Unfortunately the case occurred in private practice and no autopsy was allowed. The wound remained perfectly sound throughout, and I do not think the infection came from this source. The catgut used was tested and found sterile. No abrasion was present on the patient to allow of the entry of the organisms. I was forced to the conclusion that the infection came from the intestinal canal where the bacillus has a normal habitat. Three portals of entry to the blood-stream are available if this is the case. First, the cut edges of stomach or duodenum at the anastomosis; secondly, from gut injured in the operation—e.g., by clamps—the organisms entering through an abrasion of the mucosa; thirdly, from the ulcer itself. I think the last alternative is the most likely in this case. The ulcer being injured slightly by the manipulation it received during investigation organisms could gain access to veins in its floor. Infection of the retro-duodenal veins thus occurring widespread infection by venous connexions is possible.

I am, Sir, yours faithfully,
B. T. ROSE, Ch.M., F.R.C.S. Eng. & Edin.
Birmingham, Sept. 27th, 1924.

KING'S COLLEGE HOSPITAL.

SCHOOL OF DENTAL SURGERY.

To the Editor of THE LANCET.

SIR,—I notice that in the Students' Guide—Session 1924–25, printed in THE LANCET of Sept. 27th, no mention is made of the school of dental surgery at this hospital. The new school was opened last November by the Rt. Hon. F. Dyke Acland, M.P., Chairman of the Dental Board. I enclose a calendar of the school showing the requirements for admission. Communications should be addressed to the Secretary at the Medical School, King's College Hospital, Denmark Hill, London, S.E. 5.

I am, Sir, yours faithfully,
Sept. 29th, 1924. H. WILLOUGHBY LYLE, Dean.

HOP DERMATITIS.

To the Editor of THE LANCET.

SIR,—Following on the series of cases of hop dermatitis described by Dr. W. J. O'Donovan in THE LANCET of Sept. 20th, the notes of this case may be of interest.

Mrs. A. P., aged 40, attended the casualty department of the Miller Hospital, Greenwich-road, London, S.E., on Sept. 19th. A week after commencing hop-picking in Kent she developed a rash on her face, hands, and legs, and simultaneously her eyelids had suddenly become swollen. On examination a few days later there was still considerable œdema of the eyelids and a papular rash on the face and neck with an erythematous base, the rash causing a good deal of itching. On the backs of the fingers, hands, and wrists the rash had been at first papular, later becoming vesicular and pustular, and finally had formed crusts. Many weeping areas were present where the vesicles had been scratched. On the legs, however, the eruption was different, appearing on the anterior aspect of the leg as purpuric spots up to 1½ inches in diameter, round or with crescentic edges when several smaller patches had become confluent. There was a considerable amount of tenderness in these areas.

This case differs from those reported by Dr. O'Donovan in two respects: (1) The presence of a purpuric rash on the legs; (2) though the patient had been hop-picking in previous seasons, she had never before suffered any similar condition.

I am, Sir, yours faithfully,
C. J. STREICH, M.B. Adelaide, M.R.C.P. Lond.,
Sept. 29th. House Physician, Miller Hospital, Greenwich.

EPSOM COLLEGE REGISTER.

To the Editor of THE LANCET.

SIR,—Particulars for a revised edition of the Register are now being collected. Will those who have received forms kindly fill them in and return them to the sub-editors at once? Any old Epsomians who have not received forms should send their address to me without delay.

I am, Sir, yours faithfully,
7, The Avenue, Beckenham, Sept. 27th. H. F. LEE.

REPRESSION OF PAINFUL MEMORIES.

To the Editor of THE LANCET.

SIR,—I venture to suggest an explanation of the process by which painful memories are repressed—i.e., memories of painful experiences which have at some period of life (usually childhood) occurred to patients, and of which they were, of course, consciously aware. The explanation is based partly on observation on myself, partly on observation of a number of cases of war shock, and partly on the experiences of many friends and acquaintances whom I have questioned.

First, as regards my own personal experience. During the war, like many others, I underwent an experience which caused me intense mental suffering. On examining the course of mental events which followed this, I found that if anything occurred to remind me of the event in question, the immediate result was not the revival of the memory of the event itself, but the uprising of the same emotion of horror which it had originally caused, and that the memory of the event arose afterwards. Sometimes quite an appreciable interval separated the occurrence of the emotion from the rise of the memory—I could not bear to think of the latter and by an intense voluntary effort managed to drive it out of my mind and to think of something else. Within 48 hours a new phase commenced. When the emotion arose I was aware at once the memory would almost immediately arise. The occurrence of the emotion, in fact, acted as a danger signal, and I found that I instantly made a tremendous effort to prevent the rising of the memory, and to refuse to think of it. It was just like knowing that a repulsive picture was hanging on the wall, and refusing to look at it. In a very short time I found that I was able by this effort to hold the memory at bay, and so temporarily to repress it. The effort to repress afterwards followed with great regularity each time the motion occurred—so regularly and certainly that it became, I believe, a true psychical reflex act, and was always, I think, successful.

In a number of cases of war shock I found the same process carried out. I used to ask these soldier patients: "What happens when you are reminded of your horrible war experiences? I suppose they come before you very vividly." The answer was almost invariably, "Oh no, Sir, I feel just awful, but I never dare think of them," or words to that effect. The emotion clearly arose, but an immediate voluntary effort prevented the rise of the memory and, as in my own case, effectually locked it out. It will be noticed that these subjects were able to hold the memory at bay simply because they were warned of its approach by the emotion which preceded it. I have questioned numbers of people, and found that very many could recall some instance where the emotion preceded the occurrence of a painful memory.

I believe that we may state the following as a general law: "If the emotion caused by a painful experience is sufficiently strong, it always arises before the memory of the experience itself, when the subject is reminded of the latter." It appears to me that this law is responsible for the whole of the process of repression, and for the subsequent unpleasant sequelæ. In children (who are, of course, especially liable to repress painful memories) exactly the same chain of events, I believe, takes place when they are reminded of a painful or terrifying experience. The emotion arises first—acting as a danger signal—

and the memory is repulsed and held at bay just as in adults. But children are engaged in making every voluntary action which is often repeated automatic if they can, and what was at first a voluntary conscious act of repression, in their case rapidly becomes an unconscious and automatic one. The result of this process in the after-life of the child seems a fairly obvious one. If anything occurs to remind him of his painful experience, the emotion immediately arises, and at once causes the automatic repression of the memory which threatens to arise. The result is that the unfortunate individual is seized by some painful and often agonising emotion, which he is totally unable even to attempt to resist or combat, since he is utterly unconscious of its cause.

It is these emotions which form the symptoms induced by a repressed memory, and they may be, and often are, extremely serious. One of the commonest emotions met with in these cases is fear, and this alone may of itself give rise to other grave symptoms. I have seen the emotion of fear caused by a repression actually induce attacks of true epilepsy and catalepsy, and the number of different symptoms met with in various patients who suffer from repression is almost legion. But if the patient can be made to recall the actual painful experience (and this can often be done by means of even light hypnosis, or by some psycho-analytic procedure) the symptoms caused by the repressed memory vanish at once and permanently.

One is often asked, " Why does the recovery of the repressed memory cure the symptoms ? " I think the question is better put in this form : " Why do recalled painful memories do us no harm ? " It is certain that most of us can recall many painful memories, and that these memories produce no pathological effects. I conclude that remembered painful memories are harmless, probably, I imagine, because we can bring our judgment to bear on them. When the patient recalls the memory which caused his symptoms, it begins at once to behave like the rest of his remembered painful memories of life. Like them, it now does no harm, and produces no symptoms, and the patient is cured.

I am, Sir, yours faithfully,
HUGH WINGFIELD.

Rupert-road, Bedford Park, W., Sept. 26th, 1924.

MILK PROBLEMS.

To the Editor of THE LANCET.

SIR,—The leading article with this title in your issue of Sept. 20th opens up points of vital importance to national health. Taking milk as a whole the standard of purity in this country is very low indeed. There are a few enthusiastic pioneers in the industry, who, without compulsion, try to place a clean germ-free article on the market, but they are so few that their beneficent influence is negligible. It appears to me there are only two ways whereby the milk standard could be universally raised—viz., compulsion and education.

In regard to the former, if the Milk and Dairies Act, and the Tuberculosis Order, 1914, were put into force, great good would follow, and I think it is unfortunate that such an influential body as the Council of the British Medical Association should decline to bring pressure to bear upon the Government for its introduction. The veterinary profession is prepared to give its blessing to these Orders. In regard to education the public are very apathetic on the question of pure milk, and this apathy can only be accounted for by their ignorance of the dangers to health that impure milk involves. The educational process must needs, therefore, be slow, and to reach the " man in the street " the propaganda would have to be simple, descriptive, and unusual. If, for example, there were thrown upon the cinema screens specimens of (1) impure milk showing debris, &c., (2) pathogenic germs found in milk, and the diseases they produce, not forgetting to mention the number of children who die annually from bovine tuberculosis, the public would soon realise the risks they were running and a demand for the pure article would follow.

I recognise that such an insight by the layman might do some initial harm to the milk industry, but this would only be temporary, for the public demand would compel the dairy industry to put its house in order, and an increased consumption of milk would follow. Public authority has recently instituted a graded system of milk production, but the number of milk producers who have taken it up are so small that it can scarcely be called a success. We are far behind other countries. What impressed me more than anything at The Hague Dairy Exposition of 1911 was the kindly, elaborate, and thorough manner in which the Government authorities educated the small farmers on the essentials necessary to produce a pure, clean milk.

I am, Sir, yours faithfully,
W. M. SCOTT, F.R.C.V.S.

Bridgwater, Sept. 23rd, 1924.

THE TRANSMISSION OF ENCEPHALITIS LETHARGICA.

To the Editor of THE LANCET.

SIR,—I should be glad if you would give me this opportunity of commenting on a review of encephalitis lethargica which you summarise in THE LANCET of Sept. 27th. In this review Dr. Da Fano repeats certain criticisms made by Dr. S. Flexner and others concerning the transmission of encephalitis lethargica to rabbits. These writers state that they doubt whether encephalitis lethargica has ever been transmitted to rabbits at all. A criticism based on the fact that a spontaneous encephalitis is known to occur in rabbits, and on the difficulty of obtaining positive inoculation results at the present moment. In the period between 1918 and 1921 I consider that I successfully raised the virus from human material on several occasions and carried the virus on in series in rabbits. Previous to these results many failures were obtained, chiefly on the fact that monkeys were used instead of rabbits. Similar positive results were obtained by Loewe, Hirshfield and Strauss, Levaditi and Harvier, and others.

In reply to these criticisms might I point out that they can only have been made by writers who had not weighed carefully the evidence of the literature before them, and who were unfamiliar with the histological lesions of true experimental encephalitis ? In support of this contention the following facts can be urged. It was only from human material showing the definite lesion of encephalitis lethargica that an experimental encephalitis was produced on inoculation. Control inoculations consisting chiefly of material believed to come from cases of encephalitis which subsequently on histological examination proved not to be cases, did not produce an encephalitis.

The spontaneous encephalitis of rabbits is uncommon amongst our laboratory rabbits, as no case has been found in a very large number of examinations, and similar results have been obtained in the last year when many cerebral inoculations have been made during the course of another research. The histological lesion in the spontaneous encephalitis of rabbits is really of the nature of a granuloma with numerous large epithelioid cells, while that of experimental encephalitis lethargica is a perivascular sheath infiltration of small round cells (chiefly lymphocytes) with focal accumulations of similar cells in the brain substance.

There should, therefore, be no difficulty in distinguishing these two, even to the inexperienced, and the possibility of staining the parasite of the rabbit encephalitis gives a further conclusive control.

I am, Sir, yours faithfully,
JAMES MCINTOSH.

The Bland-Sutton Institute of Pathology,
Middlesex Hospital, London, W. 1,
Sept. 30th, 1924.

Obituary.

WALTER HAMILTON ACLAND JACOBSON, M.CH. OXF., F.R.C.S. ENG.

THE recent death of Mr. W. H. A. Jacobson at his residence in Kent, where he had lived in retirement for over 15 years, will recall to many old students of Guy's Hospital a great teacher of surgery, whose arresting personality, brilliant intellect, and amazing powers of expression made everything he said and wrote interesting and memorable. Jacobson was educated at Oxford and Guy's Hospital. He took his B.A. (first class in Natural Sciences) in 1869, and became M.R.C.S. Eng. in 1872, gaining his Fellowship three years later. As assistant surgeon at Guy's Hospital he was appointed teacher of operative surgery in the medical school, later becoming lecturer on anatomy. He was also surgeon at the Royal Waterloo Hospital for Children and Women.

Jacobson's most enduring and laborious work was the compilation of "The Operations of Surgery," first published in 1889, which has since run through six editions, of which the last appeared in 1915. The first edition, in one volume, was a bold attempt on the part of the author to treat the subject of operative surgery in a much more complete and detailed manner than had been done by any of the contemporary English or American authors, and succeeded in becoming the best general treatise on surgical operations in the English language. Subsequent editors, in order to bring it up to date, have had to delete much of the original matter, but no one who has the first edition parts with it. The descriptions of the operations were clear, accurate, and detailed, and the work was far more than a mere guide to operating on the cadaver. The success of this book exceeded all expectations, for its wealth of clinical experience and its accurate description of operations made it indispensable to every surgeon; not a few still speak of it as their Bible. In 1893 Jacobson published the results of some ten years' work in "The Diseases of the Male Generative Organs." Before that date many valuable articles and monographs on this branch of surgery had appeared in France, Germany, and England, and Jacobson, just when some correlation in this field was needed, gathered up the results obtained and formulated the position of contemporary knowledge. From 1893 to 1898 he examined for the Royal College of Surgeons of England as a member of the Board of Examiners in Anatomy and Physiology, and as a member of the Court of Examiners from 1900 to 1905.

Jacobson was possessed of literary ability far beyond the common. His In Memoriam notice of John Hilton, which appeared in Guy's Hospital Reports, of which Jacobson was for many years joint editor, is a model in style. His articles in the "System of Surgery," edited by Homes and Hulke, on fractures, injuries of the back, injuries of the face, and others, were generally recognised as among the best in that work. He did not write many papers, but the few were good. Among them might be mentioned his articles on diseases of the foot and ankle and on diseases of the scrotum in Heath's "Dictionary of Surgery." Of his medical writings in Guy's Hospital Reports, his account of Five Cases of Chancre in Medical Men may be mentioned as an example of lucid description. In THE LANCET his name appeared frequently as a speaker on such subjects as lumbar nephrolithotomy, the surgical sequelæ of fevers, and vesical calculi, in the Clinical Society of London, and of the Harveian Society, of both of which he was an enthusiastic member, and in 1883 he published a series of remarks on the entire removal of the tongue with scissors by the Whitehead method.

Of his qualities as a teacher and as a man Sir William Hale-White sends the following appreciation: "All my surgical appointments were either under Jacobson or Sir Henry Howse, whose assistant surgeon Jacobson was. He was the best teacher I have ever met, partly from a great natural gift, partly from the trouble he took. The theatre was always packed, those who were not there in time could not find a seat. Crowds attended his out-patients, his demonstrations, and his visits to the wards. Hilton in his last years said, 'I know I used to be down upon the men, but I did it for their good.' The same was true of Jacobson. His straight speech to the idler would have been resented had it come from anyone else, but all forgave on account of their knowledge that his object was to make them learn. No one will ever know a tithe of all that he did for the students when they were in trouble, they loved him, and recollected him long after they had left the hospital. He was a man who always remembered little things. I was sitting with him in his study one evening when Sir Henry Howse's servant brought Jacobson a brace of pheasants. He went into the hall, thanked the man, gave him some cigars for his trouble, came back, and in two minutes jumped up saying that as Howse did not smoke and disliked the smell, he ought not to have given his servant cigars. Thereupon he rushed down the street, recovered the cigars, and gave the man money instead. His honesty, his true kindness, his genius for teaching both orally and by writing, and his personality gave him a great position, and have created a lasting affectionate remembrance of him among the hundreds of students who came under his influence."

Somewhat late in life Jacobson was very happily married, but the tragic drowning of his little son and only child cast a shadow over his later years. He then gave up his appointment at Guy's Hospital and his private consulting practice, and retired to his country house at Hawkhurst. He loved the country and country folk and tramped about during many a long day. He was devoted to his wife, to his garden, and to his poor neighbours, especially the children. Needless to say they returned his love and brought him occupation and happiness.

HENRY GERVIS, M.D., F.R.C.P. LOND.

Dr. Henry Gervis, consulting obstetrician to St. Thomas's Hospital, whose death occurred on Sept. 25th at his house in Bath, had reached the advanced age of 86. Throughout a long professional career he was well known as a great obstetrician.

Born in 1837 at Tiverton, he was educated at Mill Hill School and Trinity College, Cambridge, entering the medical profession through St. Thomas's Hospital Medical School. A successful student, he obtained both exhibitions and gold medals at the University of London; he graduated M.D. in 1861 and took the M.R.C.P. Lond. in the following year, 12 years later being elected F.R.C.P. At St. Thomas's Hospital he filled in succession all the obstetrical posts, becoming consulting obstetric physician on his retirement. Over his long period of active service he was not only a valuable member of the staff but a distinguished teacher.

One of his pupils, now himself of consulting rank, writes as follows: "Those who had the privilege of working under Gervis during their curriculum at St. Thomas's Hospital remember with gratitude the instruction which he gave them in his special branch of work. Always considerate towards his patients, he inculcated into his clerks and house officers the necessity of kind and gentle treatment of every patient, no matter how troublesome she might be in her elaboration and repetition of symptoms. He was physician to the hospital at a time when the obstetric physician was regarded as a prescriber of medical remedies rather than as a surgeon. The surgeons permitted him to perform operations, but not those which involved opening of the peritoneum. As this branch of the obstetric art was practically non-existent in the days when Gervis first joined the staff, there was no complaint, because it was the custom at all hospitals to restrict the operations of the gynæcological department to those which could be performed per vaginam. When doing these he was careful, cleanly in his work, and very thorough, taking the opportunity of demonstrating the advantages of the method which had been employed as compared with others. It is not surprising that he gained a great influence over his patients and he was spoken of with affection by them long after he had retired from the active practice of his profession. As a lecturer he was clear in diction and always succeeded in making his lectures interesting. One knew that they contained not only the recent ideas on the subject, but also conveyed his own matured judgment. He was pleased to discuss any apparently obscure point, and never conveyed the impression that it was a trouble to do so, although the large extent of his practice as a consultant must often have rendered any such discussion more than inconvenient. To one who was a clinical clerk and afterwards resident accoucheur in his clinique, the memory of Henry Gervis will always be an abiding and a happy one. Of tall figure, graceful carriage, and pleasant manner, the friendly expression of his face as he turned to answer some question, adjusting his spectacles as he did so with thumb and little finger, is still distinct, though many years have passed since the last impression was received."

To this sympathetic but accurate document little addition is necessary to show Dr. Henry Gervis's claims to be regarded as a professional leader. His fairness and accuracy assured his selection as an examiner and he discharged this office for the Universities of Cambridge and London and the Royal College of Physicians of London. He was elected President of the Obstetrical Society and of the Hunterian Society, before the latter of which he delivered the Annual Oration as long ago as 1875. He was not a prolific author, but whatever he wrote was informed by his personal experience, and valuable papers will be found by him in the St. Thomas's Hospital Reports on such subjects as hydramnios, the anatomy of the hymen, and puerperal septicæmia. He also wrote the article on sterility in Allbutt and Rolleston's System, and contributed the article on phlegmasia dolens to Quain's Dictionary of Medicine. In private life Dr. Gervis was a keen archæologist, being a Fellow of the Society of Antiquaries and of several archæological associations. His only son is a member of the medical profession.

HARTLEY LUPTON.

BY the death of Mr. Hartley Lupton physiology has lost one of the best and keenest of its recent recruits. Lupton was originally trained as a physicist, and his first work was carried out at the University of Manchester, of which he was a student, on radium. He then proceeded to study for a medical degree, but found that research work in physiology offered greater attractions. Under the guidance of Prof. A. V. Hill he commenced an investigation into the physiology of muscular contraction and muscular work in the human subject, and as a result of three years of very hard work, continued up to the time of his death, he contributed very materially to our knowledge of this branch of human physiology. His work served to illustrate in a surprisingly clear manner the application of academic knowledge to facts of everyday life. He faced death, as he lived, with constant fortitude, and his open and generous character will be missed by a large circle of friends in Manchester and in London, where his life's work came to its abrupt end.

THE LANCET: SUBSCRIPTION RATES.

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ABROAD	One Year	2	10	0
	Six Months	1	5	0
	Three Months	0	12	6

Medical News.

UNIVERSITY OF LONDON.—A course of three lectures on La douleur, au point de vue des fonctions affectives et perceptives will be given in French by Prof. Henri Piéron, of the Sorbonne, Paris, in October. Further details will be announced later. The Semon lecture, entitled Malignant Disease of the Gullet, will be given in French by Dr. D. Guisez, of Paris, at the rooms of the Royal Society of Medicine, 1, Wimpole-street, W. 1, on Thursday, Nov. 6th, at 5 P.M. Admission to these lectures is free. A course of 24 University extension lectures on the History of Science will be given by Dr. Charles Singer at Gresham College, Basinghall-street, London, E.C. 2, on Mondays, at 6 P.M.

University College.—To-day (Friday), at 5.30 P.M., Prof. T. Percy Nunn will lecture on the Scientific Interpretation of Nature. This lecture is introductory to the new course for the M.Sc. on the Principles, History, and Method of Science. Prof. E. H. Starling will be in the chair. The lecture is open to the public without fee or ticket. A public lecture will be given on Oct. 8th, at 6 P.M., by Prof. C. Spearman, F.R.S., on the Current Views of Individual Differences in Ability.

The following elections have been made in the Faculty of Medical Sciences at University College, London: To the Bucknill Scholarship, of the value of 160 guineas, Mr. D. F. Ogborn (Wood Green County School). To Exhibitions of 55 guineas each: Mr. W. A. Wilson (Hornsey County School) and Mr. H. Tomkin (Coopers' Company School). To the Epsom Medical Scholarship, Mr. R. W. Haines. To an additional Scholarship, Mr. P. A. Cooper, also of Epsom College.

King's College.—A special course of eight lectures on the Histology of the Nervous System will be given during the Michaelmas Term (October–November), in the Physiology Lecture Theatre of the College, Strand, W.C. 2, by Dr. C. Da Fano, reader in histology in the University. The lectures will be accompanied by demonstrations of specimens, and will be held on Wednesdays at 4.30 P.M., beginning on Oct. 8th. The course is free to all students of London colleges, and to medical men and others on presentation of their visiting cards. The course has been recognised by the University of London as one of the special courses for the B.Sc. honours degree.

Five lectures on the Human Body and its Function will be given by Prof. R. J. S. McDowall on Wednesdays, at 5.30 P.M., beginning on Oct. 8th; four lectures will be delivered by Dr. E. W. Scripture, at 5.30 P.M., on Oct. 6th, 13th, and 20th, and Nov. 3rd. Six intercollegiate lectures, open to the public, on Scientific Method, will be given on Fridays, at 5.30 P.M., beginning on Nov. 7th by Prof. E. W. Hobson, F.R.S., Prof. L. T. Hobhouse, Prof. E. G. Coker, F.R.S., Prof. E. W. MacBride, F.R.S., Dr. E. S. Russell, and Prof. A. V. Hill, F.R.S.

Parliamentary By-election.—At a meeting of the London University supporters of the Labour Party on Sept. 25th, F. G. Bushnell, M.D., B.S. Lond., D.P.H. Camb., was unanimously adopted as Labour candidate in the coming by-election. Dr. Bushnell graduated in medicine from University College Medical School in 1891, and during the war served in the R.A.M.C. (27th Division) in France and Macedonia. He is now tuberculosis medical officer, deputy medical officer of health, and joint bacteriologist to the Plymouth Borough Council. His active association with the Labour Party dates back some years, and his report on the employment and after-care of tuberculous persons which appeared in THE LANCET of Sept. 27th was drawn up at the request of the advisory committee of the Trades Union Congress and Labour Party.

LONDON MEDICAL EXHIBITION.—This exhibition which has now become a feature of the medical year, will open at the Central Hall, Westminster, London, S.W., on Monday, Oct. 6th, and close on Friday, Oct. 10th. Established in 1905 its scope has now been enlarged in an attempt to cover the whole range of agencies for medical treatment. The exhibition, which is open to medical men only, will comprise the most recent organo-therapeutic, bacteriological, and pharmaceutical remedies and prophylactics; electro-therapeutic apparatus; scientific dietary; surgical instruments; hospital furniture and medical appliances, diagnostic material, and apparatus; pathological and physiological apparatus; artificial limbs, aids in invalidity and deformity; sick-room requisites; natural and artificial hydrotherapy; professional literature; hygienic clothing, and so forth. Invitation cards can be obtained from the secretary of the exhibition, 194–200, Bishopsgate, London, E.C., or at the Central Hall during the exhibition.

TAVISTOCK CLINIC.—A course of ten lectures on Elementary Psychotherapy will be given at the Tavistock Clinic for Functional Nerve Cases, 51, Tavistock-square, W.C., by Dr. H. Crichton Miller on Mondays, at 5.30 P.M., beginning Oct. 13th. A syllabus of the lectures and further details may be obtained from the lecture secretary at the clinic.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.—A course of lectures for medical practitioners will be delivered at the hospital on Thursdays at 4 P.M., from October to December. The course will open on Oct. 9th, when Mr. F. G. Doyne will deal with Dacryocystitis Neonatorum. The other lectures will be announced appropriately in our Medical Diary. The lectures are free to medical practitioners.

NATIONAL INSTITUTE FOR THE BLIND.—The After-care Department of the National Institute for the Blind states that during August 45 new cases came under their care (19 men and 26 women). Gifts, inclusive of clothing, to the number of 21 were provided at a cost of £37. The amount expended in training fees was £49, in relief £360, and in relief administered by branehes £143.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual dinner of this society will be held at the Hotel Cecil, Strand, W.C., on Friday, Oct. 17th, at 7.30 P.M. The Minister of Health hopes to attend, and others who have accepted include the Bishop of Winchester, Sir Alfred Mond, Major Haden Guest, M.P., Sir Humphry Rolleston, P.R.C.P., Sir Arthur Robinson, Sir George Newman, and Major-General J. E. B. Seely. A musical programme is being arranged to follow the dinner. Ladies are invited, and members are asked to give early notice to the executive secretary, 1, Upper Montague-street, Russell-square, W.C. 1, of their intention to be present, with the names of their guests. A payment of 12*s.* 6*d.* for each ticket should be included with applications sent before Oct. 11th; after that date the cost of tickets will be 15*s.* each.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—A special post-graduate course will be held this week end, Oct. 4th, 5th, and 6th. On Saturday, Oct. 4th, at 11 A.M., Mr. T. G. Stevens will lecture on Chronic Metritis and Allied Disorders, and at noon Sir William Willcox will discuss the Toxic Factor in Disease. At 2 P.M. Dr. C. M. Wilson will speak on Neurology: the Essential Minimum, to be followed at 3 P.M. by Dr. A. Hope Gosse on Common Cardiac Irregularities. On Sunday, Oct. 5th, there will be two lectures, one at 10.30 A.M., on Diet and Disease, by Prof. B. J. Collingwood, and one at 11.30 A.M., on Surgical Treatment of Gastric Ulcer, by Prof. C. A. Pannett. Mr. Zachary Cope will address the first meeting on Monday, Oct. 6th, at 10 A.M., taking for his subject Differential Diagnosis of Acute Right Hypochondriac Pain; Mr. Aleck Bourne will speak at 11 A.M. on the Investigation of a Case of Puerperal Fever, and Mr. Gordon Bryan will discuss the Diagnosis of Acute Abdominal Illness in Children at noon. Dr. Reginald Miller will lecture on Colonic Toxæmia and its Medical Treatment at 2 P.M., and the concluding lecture will be delivered at 3 P.M. by Dr. J. B. McDougall on Some Practical Points in the Diagnosis and Treatment of Pulmonary Tuberculosis. The course is open to all medical practitioners without fee, and will be held in the Library of St. Mary's Hospital Medical School (South Wharf-road entrance or Cambridge-place entrance).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Oct. 6th, will begin a series of post-graduate lectures on cancer, delivered in the West Lecture Hall of the Royal Society of Medicine, Wimpole-street, at 5.30 P.M. The first lecture, on the General Pathology of Cancer, will be given by Dr. Archibald Leitch. The second lecture takes place on Wednesday, the 8th, when Sir Thomas Horder will lecture on Cancer from a Medical Point of View. These lectures are open to all members of the profession, and no fees are charged. The second week of the course in psychological medicine at the Bethlem Royal Hospital begins on Tuesday, the 7th. This course is a series of lecture-demonstrations given on Tuesdays and Saturdays, at 11 A.M., by Dr. Porter Phillips and Dr. Thomas Beaton. On Tuesday also begins the series of eight clinical demonstrations on tropical medicine, to be given at the London School of Hygiene and Tropical Medicine, by Dr. G. C. Low and Dr. P. H. Manson-Bahr, at 2 P.M.; the second demonstration takes place on Thursday at the same time. On Wednesday, Oct. 8th, at 5.30 P.M., will be given the first of four lecture-demonstrations on Treatment by Electrotherapy at the Royal Free Hospital, by Dr. C. B. Heald. Full particulars and syllabuses of all these courses may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole-street, W. 1.

CITY OF LONDON HOSPITAL FOR DISEASES OF HEART AND LUNGS.—A short intensive course for post-graduates will be held at the hospital at Victoria Park, E., from Monday, Oct. 13th, to Friday, the 17th. On the first day, Oct. 13th. Dr. J. Browning Alexander will lecture on Diabetes and Tuberculosis at 11 A.M., and Dr. S. R. Gloyne will lecture on the Pathology of Pneumothorax at 2.30 P.M. Subsequent lectures will be announced in the Medical Diary, and further particulars may be had from the Dean of the hospital.

MEDICAL SOCIETY OF LONDON.—The syllabus of the first half of the session has just been issued. On Oct. 13th. at 8 P.M., the annual general meeting will be held, to be followed, at 8.30 P.M., by the President's address on Medical Memories, by Dr. E. M. Callender. On Oct. 27th, at 8.30 P.M., there will be a clinical evening, with exhibition of cases and skiagrams. On Nov. 10th, at 8.30 P.M., a discussion on Encephalitis Lethargica will be introduced by Dr. E. Farquhar Buzzard, followed by Prof. A. J. Hall, Prof. J. McIntosh, Dr. A. Salusbury MacNalty, and others. On Nov. 19th, at 5 P.M., the Lloyd Roberts lecture on the Renaissance of Midwifery will be delivered by Dr. Herbert Spencer. The meeting on Nov. 24th, at 8.30 P.M., will be devoted to a discussion on the Treatment of Senile Gangrene, to be introduced by Sir Anthony Bowlby, followed by Dr. H. des Vœux, Mr. Sampson Handley, and others. On Dec. 8th, at 8.30 P.M., a discussion on the Present Position of the Treatment of Diabetes by Insulin will be introduced by Dr. George Graham, followed by Prof. H. MacLean and others. The Lettsomian lectures on Wounds and other Injuries will be delivered in February and March, 1925, by Sir Bernard Spilsbury. The annual oration on the Medical Career of John Keats will be delivered in May, 1925, by Sir William Hale-White.

MEDICAL DEFENCE UNION.—The annual general meeting of this Union was held at the Brighton, Hove, and Preston Dispensary on Thursday, Sept. 25th. The President, Mr. Walter G. Spencer, F.R.C.S., was in the chair, and 26 other members were present. In moving the adoption of the annual report of the Council for the year 1923–24, the President congratulated the members upon the satisfactory position now occupied by the Union. The first year in the new offices had been attended by a marked increase in the number of applicants for membership. Already the number of new members elected in the nine months of the current year (over 1200) exceeded that of the whole of any previous year, the roll of members now having reached a total of over 11,800. The President referred in feeling terms to the death of Sir John Tweedy, a former president, and Dr. J. Roche Lynch and Dr. A. C. Roper, former members of the Council, and also to the loss which the Union had sustained through the retirement of Dr. M. Hallwright from the Council owing to ill-health. He congratulated the Union on the efficient services rendered to the Union by the general secretary and his clerical staff. The very full and clear report supplied by the solicitor was highly satisfactory, and there had been remarkable success in those legal actions which the solicitor had advised the Union to undertake during the past year. The annual report of the Council and the financial statement for the year 1923 were adopted unanimously. Sir Charles Ballance, Dr. E. C. Greenwood, and Dr. W. S. A. Griffith were unanimously re-elected members of the Council. The auditors were reappointed for the current year and a hearty vote of thanks was accorded to the President and Council for their services during the past 12 months. At the conclusion of the annual general meeting an extraordinary general meeting was held, when proposals submitted by the Council for alteration of the Articles of Association were unanimously adopted.

BRIGHTON WATER-SUPPLY.—Despite the troubles in the building trade building developments are going on on a large scale in Brighton and in the surrounding district, which includes Rottingdean in an eastward direction and Shoreham-by-Sea in the westward. Large houses and small ones which formerly sheltered but one family are being converted into flats, thus adding to the population by leaps and bounds. The demands upon the water-supply have been increasing very rapidly, and careful watchings have shown that while the limit of the supply has by no means been reached, the limit of the pumping capacity and also the limit of the storage capacity have been reached. These facts were brought to the notice of the corporation, and that body by a unanimous vote on Sept. 25th decided to proceed forthwith with an estimated expenditure of £106,855 by way of extensions of the pumping stations and reservoirs and other concomitant works. The waterworks undertaking at Brighton has unexhausted borrowing powers sufficient to cover this large figure, and this will save the necessity of any application being made to Parliament.

SUMMER Time in France will cease at midnight on Saturday, Oct. 4th, when the clocks will be put back one hour. This is practically a fortnight later than in England.

A SUM of £35,287 has been distributed to various London hospitals and charities out of the collections made on Alexandra Day, June 25th, which amounted to £40,423.

MEMORIAL TO THE LATE DR. J. EVAN JONES.—A memorial in the form of a lych gate at the entrance to Ludgershall churchyard, Wiltshire, erected by former patients and friends, was recently dedicated to the memory of "James Evan Jones, M.R.C.S., L.R.C.P., born April 18th, 1869, died April 15th, 1923." Dr. Jones, who was educated at Llandovery College and St. Bartholomew's Hospital, had practised medicine in the district for over 20 years.

UNIVERSITY OF MELBOURNE: CHAIR OF DENTAL SCIENCE.—To this newly created chair Mr. F. C. Wilkinson, B.D.S., M.D., of the University of Liverpool, has been appointed. Prof. Wilkinson commenced his dental studies in 1906 under Prof. W. H. Gilmour, and in 1912 took the degree of B.D.S. with honours, graduated as M.B. and Ch.B. in the same year, and in 1917 obtained the degree of M.D. From 1915–18 Dr. Wilkinson served with the R.A.M.C. at the Liverpool Merchants' Mobile Hospital in France. Since then he has been engaged in private practice and has also held various appointments at the University and at the Dental Hospital.

UNIVERSITY OF LIVERPOOL: CLINICAL SCHOOL.—The hospitals comprising the Liverpool Clinical School are again arranging to hold lecture-demonstrations for practitioners during the University terms. The programme is so planned that on any one day a demonstration is given by one hospital only. All demonstrations will commence at 3.30 P.M. The lecture-demonstrations will be largely clinical in character; the lecturers and subjects will be arranged by individual hospitals and will include in rotation all the various clinics covered by the hospital concerned. The programme for the week commencing Oct. 6th will be found in the Medical Diary, p. 733. Further particulars may be obtained from the Secretary, 61, Rodney-street, Liverpool.

LIVERPOOL PSYCHOLOGICAL SOCIETY.—The second session of this society will commence on Oct. 7th, when Dr. Betts Taplin, the President, will deliver an inaugural address on the Power of Suggestion at the University of Liverpool at 8 P.M. The society's first session has been very successful, and an interesting programme of scientific research has been arranged for the coming winter. Further particulars may be obtained from the secretary, The University, Liverpool.

WIRELESS CONCERTS FOR LIVERPOOL PATIENTS.—A six-valve wireless receiving set has just been installed in the City Sanatorium at Fazakerley, Liverpool, and has been connected up by overhead wiring to seven wards in which loud speakers have been placed. In helping to relieve the monotony of prolonged sanatorium routine, wireless, it is felt, will be of the utmost value. The stimulus came from an enthusiastic patient, who put together a small set of his own, together with an ear-piece, which he hung by his bed.

DONATIONS AND BEQUESTS.—Under the will of the late Miss Mary Wilson Mitchell, of Macrocarpa, Ventnor, the testatrix left among other bequests £8000, as the trustees of her will may think fit, for distribution among war or other charities, institutions, hospitals, convalescent and nursing homes; £1000 each for a Mitchell bed in the Women's Block of the Royal National Hospital for Consumption, the Church Missionary Society, and the Church of England Zenana Missionary Society; £500 each to the London Hospital, Guy's Hospital, St. Bartholomew's Hospital (New Hospital Building Fund), St. Thomas's Hospital, the Middlesex Hospital (for the Cancer Research Laboratory), the Royal Northern Hospital, the Hospital for Epilepsy and Paralysis, Maida Vale, the Mildmay Mission Hospital, the Royal Isle of Wight County Hospital (for a Mitchell bed in the women's ward), Lord Mayor Treloar's Cripples Home and College (for a Mitchell cot), and King Edward's Hospital Fund for London; and £300 each to the Poplar Hospital, the Royal Free Hospital, and the Cancer Hospital, Fulham.—Among bequests left by the late Mr. Jabez Gurteen, J.P., of Haverhill, Suffolk, and of Sturmer, Essex, is one of £1500 to the Royal Surrey County Hospital, Guildford.—By the will of the late Sir Walter James Buchanan, K.C.I.E., sometime editor of the *Indian Medical Gazette*, he left, in addition to property in Ireland, personal estate in England of the net value of £9348. He bequeathed one-thirtieth of all his other property, after a bequest of £7000, to Sir Patrick Dun's Hospital, Dublin.

MANCHESTER MEDICAL SOCIETY.—This society, of which Prof. G. R. Murray is President, will hold its opening meeting for the session on Wednesday, Oct. 8th, at 8 P.M., when Dr. Arthur F. Hurst will deliver a lecture on the Sphincters of the Alimentary Canal and their Clinical Importance. A full syllabus of the meetings may be obtained from the hon. secretary, Dr. A. Hillyard Holmes, The University, Manchester.

MANCHESTER JEWISH HOSPITAL EXTENSION.—Lord Leverhulme recently laid the foundation-stone of the new nurses' home which is being added to the Victoria Memorial Jewish Hospital. The building will cost at least £15,000, which does not include equipment. To this end an appeal has been launched for half a million shillings. Although founded and managed by Jews, the hospital is open to all people irrespective of race or creed. At present there are 38 beds and a staff of 14 nurses. The new building will raise the number of beds to 52, and the nursing staff will be increased to 28, and the hospital will then be able to qualify as a training centre for the certificate of the General Medical Council. Already 25,000 shillings have been collected or promised. Last year the hospital treated 9800 in-patients and out-patients at a cost of 11*s.* 6½*d.* per patient.

BRADFORD MENTAL DEFECTIVES.—At a meeting of the Mental Deficiency Committee of the Bradford Corporation held last week, it was resolved to submit a scheme for a new mental institution to the City Council and the Ministry of Health. The new institution would accommodate 340 patients, and would cost £133,000; later it is hoped to extend the scheme to provide for 500 patients. The additional total expenditure involved is anticipated to be £6240 per annum, half of which sum will be met by the Board of Control. The scheme comprises the erection of administrative buildings, a laundry, a recreation hall, a hospital, and accommodation for doctors and nurses. One of the benefits of the institution will be that it will be possible to separate patients of varying stages of intelligence in different buildings and grades.

LADIES' MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Addington on Sept. 26th. The scratch prize was won by Mrs. Collis-Browne with a score of 89, after a tie with Mrs. de Paula. The senior handicap prize was won by Mrs. Lucas Keene, M.B. (95 – 19=76), and the junior handicap prize by Mrs. H. Carson (112 – 26=86). The special prize for the aggregate of spring and autumn meeting scores under handicap was won by Mrs. Collis-Browne (83 net + 85 net=168), who also won the fourball foursomes competition in the afternoon, partnered by Mrs. Lucas Keene. The meeting was to some extent marred by bad weather, but thanks to the untiring energy of Miss Cecil Leitch, the captain, who acting as hon. secretary made herself responsible for all arrangements, it was nevertheless a most successful one.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 7th.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)
Presidential Address:
Mr. H. A. T. Fairbank: Some Affections of the Epiphyses.
Cases illustrating Unusual Conditions of Epiphyses will be shown.

Thursday, Oct. 9th.

NEUROLOGY: at 8.30 P.M.
Presidential Address:
Dr. E. Farquhar Buzzard: The Evolution of Neurology and its Bearing on Medical Education.

Friday, Oct. 10th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Sir StClair Thomson: Two Cases of Persistent Paralysis of One Vocal Cord from a Tubercular Lesion involving the Recurrent Laryngeal Nerve.
Dr. F. Parkes Weber: Recklinghausen's Disease with Left Lateral (suprazygomatic) Meningocele, simulating a Soft Fibromatous Fold of Skin.
Other cases will be shown.

OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)
Cases will be shown.
Presidential Address:
Sir Arnold Lawson: Tinted Lenses and their Uses.
Discussion is invited.
Paper:
Mr. A. F. MacCallan: Cataract Operations in Egypt.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

Monday, Oct. 6th, to Saturday, Oct. 11th.—West Lecture Hall, Royal Society of Medicine, W. Lectures arranged by the Fellowship of Medicine and open to all members of the medical profession. To start at 5.30 P.M. Mon., Dr. Archibald Leitch: The General Pathology of Cancer. Wed., Sir Thomas Horder, Bt.: Cancer from a Medical Point of View.—Bethlem Royal Hospital. Lecture-Demonstration on Tues. and Sat. at 11 A.M., by Dr. Porter Phillips and Dr. Thomas Beaton.—London School of Hygiene and Tropical Medicine. Tues. and Thurs., 2 P.M., Dr. G. C. Low and Dr. Manson-Bahr: Clinical Demonstrations on Tropical Medicine.—Royal Free Hospital, Wed., 5.30 P.M., Dr. C. B. Heald: Lecture-Demonstration on Treatment by Electro-Therapy, illustrated by cases under treatment at the hospital.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Oct. 6th.—11 A.M., Surgical Registrar: Surgical Wards. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.

Tuesday.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

Wednesday.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Owen: Medical Out-patients. Dr. Pernet: Skin Dept.

Thursday.—12 noon, Medical Registrar: Clinical Methods. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

Friday.—11 A.M., Dr. McDougal: Medical Electricity. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M., to 6 P.M., Saturdays, 10 A.M., to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Oct. 9th.—4 P.M., Mr. Doyne: Dacryocystitis Neonatorum.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.

Tuesday, Oct. 7th.—5 P.M., Dr. J. H. Stowers: Chesterfield Lecture.

Thursday.—5 P.M., Dr. J. M. H. MacLeod: Anatomy.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

Monday, Oct. 6th.—(At the Children's Hospital.) Mr. W. A. Thompson: Hare-Lip and Cleft Palate.

Tuesday.—(At the Southern Hospital.) Mr. Douglas-Crawford: Surgical Cases.

Wednesday.—(At the Northern Hospital.) Mr. Rawlinson: Prostatism.

Thursday.—(At the Stanley Hospital.) Dr. Gullan; Action of Thyroid and Pituitary Glands.

Friday.—(At the Royal Infirmary.) Dr. Bigland: Medical Cases, particularly Neurological.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

Tuesday, Oct. 7th.—4.15 P.M., Sir John Bland-Sutton: Attic Salt for Gall-stones (Lloyd Roberts Lecture).

Friday.—4.15 P.M., Prof. H. S. Raper: Fat Metabolism and Some of its Disorders.

Appointments.

Collins, F. G., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health for the Borough of West Ham.

Kettle, Edgar Hartley, M.D., B.S., Professor of Pathology and Bacteriology to the Welsh National School of Medicine, to be Honorary Pathologist and Bacteriologist to the Cardiff Royal Infirmary.

Lester-Williams, R., M.B., B.Ch. Camb., F.R.C.S. Eng., Resident Surgical Officer, Sheffield Royal Infirmary.

Gloucestershire Royal Infirmary: Terry, H. C., M.B., Ch.B. Birm., Physician, and Davey E. N., M.B., B.Ch. N.U.I., Assistant Physician and Pathologist.

St. Mary's Hospitals, Manchester: Foulds, E. J., M.B., Ch.B. Manch., and Latham, T., L.R.C.P. Lond., M.R.C.S., House Surgeons.

Surgeons under the Factory and Workshop Acts: Rogers, H., M.B., B.Ch. Dub. (Milborne Port, Somerset); Evans, G. O. D., L.R.C.P. & S. Edin. (Festiniog, Merioneth).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne, District Infirmary.—H.S. for six months. £75.

Birmingham City Education Committee.—Asst. Sch. M.O. £600.

Blackburn Union and Infirmary.—Res. Asst. M.O. £200.

Bristol Royal Hospital for Sick Children and Women.—H.P. £125.

Bristol Royal Infirmary.—Hon. Dermatologist and Hon. Asst. S. to Ear, Nose, and Throat Dept.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Second Res. H.S. £75.

Dumfries, Crichton Royal Mental Hospital.—Asst. P. £350.

Durham, Richard Murray Hospital, Blackhill.—Res. M.O. £400.

Gloucestershire Mental Hospitals, Coney-hill, Barnwood.—Jun. Asst. M.O. £350.

Gloucestershire Royal Infirmary and Eye Institution, Gloucester.—Asst. H.S. £150.

Holborn and Finsbury Hospital, Archway-road, N.—Second Asst. M.O. £300.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. £50.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and Asst. Cas. O. for six months. Each £50.

Johannesburg, S. African Institute for Medical Research.—Bacteriologist.

Lancaster County Mental Hospital.—Asst. M.O. £582.

Leamington Spa, Warneford, Leamington and South Warwickshire General Hospital.—Res. H.S. £150.

Leicester Royal Infirmary.—H.P. for six months. £62 10*s.*

London Hospital Dental School, E.—Hon. Anæsthetist.

London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £175. Also Med. Reg. 40 guineas.

Manchester Royal Infirmary.—Res. M.O. £200. Also Asst. M.O. £100.

Miller General Hospital for South-East London, Greenwich-road, S.E.—H.P. £125.

Napsbury Mental Hospital, near St. Albans, Herts.—Fourth Asst. M.O. £526 10*s.*

Paddington Green Children's Hospital, W.—H.S. for six months. £75.

Royal Chest Hospital, City-road, E.C.—P.

Royal Free Hospital, Gray's Inn-road, W.C.—Med. Reg. £250.

Royal Naval Medical Service.—Surg. Lieuts. 25*s.* per day.

Royal Northern Hospital, Holloway, N.—H.P. and H.S. £75.

Salford Union Infirmary, Hope, Pendleton, near Manchester.—First Asst. Res. M.O. £300.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Cas. O. and R. £150.

Westminster Hospital.—Obstetric S. and Asst. Obstet. S.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Castleton, Derbyshire; Wellingborough, Northamptonshire; Swaffham, Norfolk.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the districts of the Blackpool (Circuit No. 4). Applications should reach the Private Secretary, Home Office, not later than Oct. 18th.

Births, Marriages, and Deaths.

BIRTHS.

Lempriere.—On Sept. 23rd, the wife of Dr. L. R. Lempriere, of Haileybury College, Hertford, of a daughter.

Sarra.—On Sept. 20th, at "Coverack," Tilehurst-road, Reading, the wife of Dr. Edwin R. Sarra, of a son.

Wilson.—On Sept. 22nd, at Harley-street, W., the wife of Dr. C. M. Wilson, of a son.

Wilson.—On Sept. 23rd, at Putney-hill, S.W., the wife of Alex Wilson, M.D., of a son (still-born).

MARRIAGES.

Spira—Seckel.—On Sept. 25th, at Hampstead, Dr. Jean Jacques Spira, of 35, Harley-street, W., son of Mr. and Mrs. Leon Spira, of Paris, to Esmée Angela, only daughter of Mr. and Mrs. Louis Seckel, of 120, Haverstock-hill, N.W.

DEATHS.

Atkinson.—On Sept. 29th, at Osgathorpe House, near Loughborough, Edith Frances, the wife of Dr. S. E. Atkinson. Funeral Thursday at Chichester. Memorial service at 3 P.M. at Osgathorpe Parish Church.

Deighton.—On Sept. 29th, at St. Bernards, Cambridge, Frederick Deighton, M.A., M.B., surgeon, aged 70.

Gervis.—On Sept. 25th, at Royal-crescent, Bath, Henry Gervis, M.D., J.P., formerly of Harley-street, London, aged 86 years.

Jacobson.—On Sept. 14th, at Lordine Court, Ewhurst, Sussex, aged 77 years, Walter Hamilton Acland Jacobson, M.Ch. Oxon., Consulting Surgeon of Guy's Hospital, last surviving son of the late Bishop Jacobson, of Chester.

Mathewson.—On Sept. 23rd, at Willingham, Cambridge, James W. Mathewson, M.B., Ch.B.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

A CLEAN MILK COMPETITION IN KENT.

BY ALFRED GREENWOOD, M.D., B.SC. MANCH., D.P.H.,
BARRISTER-AT-LAW, MEDICAL OFFICER OF HEALTH FOR THE COUNTY OF KENT.

DURING the earliest quarter of 1923 the first clean milk competition was held in the county of Kent. This competition originated from an inquiry received, during the summer of 1922, by the agricultural organiser to the Kent Education Committee, from a coast town dairy farmer supplying milk to several girls' schools at Broadstairs and Ramsgate. The headmistresses of these schools had been reading articles in a certain daily paper condemning fresh cows' milk on account of the filth and number of dangerous germs it was alleged to contain and, being alarmed at what they read, they asked the farmer supplying their schools with milk for some guarantee that his milk was reasonably clean. As a preliminary step it was arranged that samples of his milk should be taken by the district sanitary inspector and submitted to the county bacteriological laboratory at Maidstone for examination. This was done, but it was soon evident that other farmers were confronted with a similar difficulty, and that the consumption of fresh milk was being restricted by the fact that many members of the public were afraid of it.

Objects of the Competition.

The Agricultural Education Sub-committee of the Kent Education Committee decided, therefore, to organise a clean milk competition for four purposes :—

(*a*) To show that there might be already available a supply of clean milk in the county, in addition to what is sold as Grade A and certified milk.

(*b*) To assist those dairy farmers in the county already interested in, and anxious to produce, clean milk by examining their milk from time to time by visiting their cowsheds, and as a result of the examinations and visits by advising them as to the manner in which their methods could be improved.

(*c*) By friendly rivalry, to stimulate those dairy farmers who entered this competition, *and especially their milkers*, to learn the essential conditions necessary for the production of clean milk, and to encourage them to pay still closer attention to the conditions under which their milk is produced and handled.

(*d*) To demonstrate to dairy farmers, in general, how reasonably clean milk can be produced in ordinary farm buildings, and under ordinary farm conditions, without excessive increase of cost, so that a larger supply of such milk may be available for the public.

The Kent Milk Recording Society and the Kent Education Committee together organised the competition.

Rules for Competitors.

The Kent and Sussex Farmers, Ltd., gave a challenge cup for award to the winning competitor to be held for one year. A diploma was promised to each competitor reaching a sufficiently high standard, and also a certificate for each regular milker on a diploma farm. All successful competitors had the entry fee of £1 returned to them. Money prizes of £5, £4, £3, £2, and £1 were distributed amongst the workers on the first five diploma farms. The competition extended over three months from February to May, 1923, and was open to any dairy herd, not producing Grade A milk, where there were not less than ten cows in milk during the competition. Competitors were required to take and send for bacteriological examination to Wye Agricultural College, Kent, six samples representative of their bulk milk, and also an authorised representative of the committee made surprise visits in order to sample the milk periodically. Also the inspecting judge paid at least one surprise visit to each competitor's herd at milking time, and awarded marks according to a scale of points directly under the control of the farmer—e.g., the general health of the cows, the suitability and care of the utensils and other equipment used in handling the milk, the general method of handling the milk, &c.

The awards were made on the following scale of points :—

Examination of milk		900
Bacterial content and keeping qualities	800	
Chemical analysis	100	
Inspection on the farm		600
Health of cows	100	
Equipment	100	
Methods	400	
Total possible marks		1500

It may be mentioned here that the five prize winners were awarded total marks respectively of 1258, 1165, 1136, 1106, and 1100.

These rules, as set out above, were submitted to the Ministry of Agriculture, who gave them their approval and undertook to pay two-thirds of the net cost of running the competition.

The intention to hold the competition was made known widely. As a result, 53 entries were received, which is a far larger number of entries than has been received for any clean milk competition held in any county in England previously. All competitors were advised before the competition began to read an article written by Mr. J. Mackintosh in the April, 1922, issue of the *Ministry of Agriculture Journal*, and to obtain a copy of the Ministry of Agriculture's Leaflet No. 151 on Cleanliness in the Dairy. They were also sent a copy of the score-card which would be used by the inspecting judge on his surprise visits, so that they might know what were the important points and how many marks would be awarded for each item. The score-card used was the official one recognised by the Ministry of Health slightly amplified. The marks on the score-card were intended to have a strong educational value, so that a farmer with dirty milk, as indicated by a bacterial count, might be told where the fault probably lay.

Methods of Carrying-out.

The 53 competitors were arranged into three groups, with 13 competitors in each, and one group of 14 competitors. Each competitor had to submit one sample of morning milk every fortnight. Two sterilised glass (8 oz.) bottles were sent to him, and he was warned not to remove the rubber stoppers until the time when the samples were to be taken. He was given full instructions as to the manner in which the samples were to be taken from the churns containing the milk of the whole herd, and then he filled in a paper stating the time at which the sample was taken, together with the temperature of the milk. The two sample bottles were sent, by the first available post, to Wye College for bacteriological and chemical analyses respectively.

Troubles arose at the beginning of the competition through the corks supplied with the bottles being inferior, and it was necessary to replace them with rubber corks. Another trouble was delay by post, necessitating at times supplementary samples. Some competitors filled the bottles with milk, which, when warm, was liable to force out the cork. Also in full bottles cream may become attached to the bottom of the cork, rendering a true chemical analysis impossible. There should always be about an inch of air-space between the top of the milk and the bottom of the stopper.

At the beginning of the competition it was suggested that it was a weakness to allow the competitors to take their own samples of milk, because they might "fake" them. Even if this method is open to criticism, it is really the only practical one of obtaining a large number of samples within a limited space of time. Several safeguards against "faked" samples were adopted. Any samples showing abnormal results were examined for preservatives, &c. Also surprise samples were taken at all the farms and the results of those examinations were compared with the results of the samples taken by the competitors themselves. Again, the score-card marks proved to be a further check. Not a single case of "faking" was detected.

At the end of each fortnight an interim report was sent to the competitors showing the total number of bacteria and the number of coliform organisms found per cubic centimetre of the sample submitted, together with the percentage of butter-fat it contained, and also the marks awarded for keeping properties. The above figures for every herd were given, so that a competitor could compare his own results with those obtained by other competitors, but the identification of each herd was hidden under a code number. Each competitor was told the number of his own herd only, so that he could not identify the herds of his neighbours. These reports were appreciated thoroughly by the competitors. The fortnightly report also included advice as to the best methods of cleansing utensils, the making of a home-made steriliser, the injurious effects of *Bacillus coli*, the causes of sour milk, the prevention of dust in the cowshed at milking time, and the way in which dust by spraying might be diminished. The first fortnightly return was not sent out until after the second series of samples had been received from all competitors, and so on. In this way all competitors received the same advice at a time when they all had submitted the same number of samples of milk.

Those farmers whose milk contained coliform organisms were advised to keep a watch for manurial contamination. The method of scoring for *B. coli* was as follows : Full marks for each sample of milk were 100, and if *B. coli* could be detected in 1 c.cm. of milk, 10 points were deducted, and by gradual stages up to such a point that if *B. coli* could be detected in 1/1000 c.cm. of milk, 40 points were deducted.

Similarly, in the total bacterial count if there were 500 bacteria or less in 1 c.cm. of milk no marks were deducted, and thence by gradual stages until a final point was reached where there were over 6,000,000 bacteria in each 1 c.cm. of milk, 70 marks were deducted.

The marks for keeping properties were awarded according to the number of days each sample remained sweet, without a taint and without clotting, when kept in an incubator at a standard temperature of 60° F. For each half day the sample remained sweet, starting from the time the sample was taken, two points were awarded.

For the percentage of butter-fat an average was taken of the analyses of the six morning samples submitted by each competitor. An average of 6 per cent. of butter-fat scored full marks (100), and three marks were deducted for every 0·1 per cent. below this figure down to 5·0 per cent. butter-fat which scored 70 marks. From 5·0 per cent. butter-fat downwards two marks were deducted for every 0·1 per cent. Therefore, at the end of the list, a sample showing 3·1 per cent. of butter-fat would score 28 marks.

The Results Obtained.

The results obtained were very interesting. The total number of samples of milk examined was 395, representing 11,731 gallons of milk. No less than 222 samples (representing 6300 gallons of milk) came up to Grade A milk standards for the number of *B. coli* and total number of bacteria of all kinds present, whilst 109 samples (representing 3250 gallons of milk) even came within the standards for certified milk. In other words, the 53 competitors between them were producing 3150 gallons of milk daily, and of the samples taken of this milk during the three months of the competition 54 per cent. came up to the Grade A standard, and 27 per cent. up to the certified milk standard for bacterial contents. This is a high commendation for Kent milk under the conditions named above. It will be remembered that the standard laid down in the Milk (Special Designations) Order, 1922, for certified milk is not more than 30,000 bacteria per c.cm. of milk, and no coliform organisms traceable in 0·1 c.cm., and that the standard for Grade A milk is not more than 200,000 bacteria per c.cm., and no coliform organisms in 0·01 c.cm. With respect to the keeping properties, a gradual improvement was noticed as the competition proceeded. Of the total number of 395 samples, 55 per cent. remained sweet for two and a half days from the time of sampling; 16 samples remained sweet for four complete days.

The average figures of butter-fat for individual herds ranged from 3·12 to 5·30 per cent., the average being 3·78.

Lessons to be Drawn.

Many valuable lessons were learned from this competition. It was proved that a large quantity of reasonably clean milk can be produced in Kent, and that expensive and up-to-date buildings are not essential for its production; they make it easier to produce clean milk but they are not essential. Plenty of water and close attention to small details are necessary. One little mistake may ruin what might otherwise have been an excellent sample—perhaps any one careless milker, one dirty cow or bucket, one dirty tap, or a dirty straining cloth might be the offender. The additional expense in producing reasonably clean milk does not take the form of additional capital outlay, so much as of extra time and trouble in getting the udders of the cows and everything else scrupulously clean. A man can clip the udders of 8 to 10 cows in one hour, and this should be repeated every 5 to 10 weeks. This operation does not cause chill in the udders. Another operation which saves time in the daily grooming is the clipping of the hair on the inside of the tail every few weeks. The only equipment necessary for grooming the cows is a wet brush and a currycomb for the tail and hindquarters, a strong cloth for the udders, some buckets of tepid water, and wrung-out cloths for wiping purposes. The udders should be washed separately from the tails and flanks, and a special bucket of water and cloth should be kept for that purpose. The operation of cleaning every cow under the above conditions will take two or three minutes each morning or evening.

As dust is such a great carrier of germs the spraying of the cowshed with water before milking is useful. With a knapsack sprayer this will take about five minutes. Frequent whitewashing of the cowshed is a great help. During the competition it was noticed that many of the milkers, with great pride, donned their white overalls, washed their hands, and examined their finger-nails before they started to milk. Partially covered milking or hooded pails proved valuable in preventing access of dirt to the pails during milking. The lack of proper cleansing of the dairy utensils was often the cause of bad samples of milk, and the need for a good supply of steam and water was well illustrated throughout. The value of a straining cloth is often over-rated. If a cloth is used which has not been properly sterilised since the last milking it may prove to be a fertile source of contamination. In that case a cotton-wool disc is preferable. A box containing 100 discs costs 2*s.* 6*d.* After use the discs can be discarded.

Cost of Cleanliness.

The chief extra cost in carrying out the above suggestions consists in the thorough sterilisation of the dairy utensils, but even this cost can be diminished by the installation of a home-made sterilising plant. It is a mistake to begin the cleaning process by scalding the pails and the cooler, because the albumin of the adhering milk will coagulate and render its removal more difficult. Cold water should therefore first be used to remove all traces of milk immediately after milking. The utensils may be left in cold water during the breakfast period. Then they should be washed with hot water and soda in order to remove greasy material. Countless organisms, however, still cling to the walls of the churns and pails. Only sterilisation can remove these organisms, but the two processes of washing and sterilisation should always be regarded as complementary one to the other. Steam is the most effective sterilising agent on a farm for the above purpose. The cooler is perhaps the most difficult article, excepting the milking machine, to keep clean.

An improvised sterilising plant may be used by an ordinary copper or portable boiler with a wooden lid, in the centre of which is a metal pipe 6 or 8 inches in length and 2 inches in diameter, in order to lead the steam from the boiler into the article to be sterilised. Mr. Garrad, the agricultural organiser for Kent, to whom I am indebted for much information in this paper, has estimated that the additional cost of carrying out all the above suggestions should not exceed 2*d.* per gallon—i.e., ½*d.* per quart of milk. In Reading farmers get 3*d.* per gallon extra for Grade A (tuberculin-tested) milk, and the retailer sells it at 4*d.* above the price per gallon of ordinary milk.

The Place of Raw Milk in the Diet.

At the end of this competition the Kent Milk Recording Society decided to publish a full report, to which I contributed a foreword, in the form of a handbook, 20,000 copies of which were distributed broadcast. Probably a greater section of the public are now alive to the need for a cleaner raw milk-supply than was the case several years ago, but unless care be taken misapprehension as to the best methods to be adopted may arise.

Clean raw milk is not only a perfect food, but it is by far the best form of milk if it can be obtained, and every effort should be encouraged to induce an increased consumption of such food, not only from a health but from an economic point of view. Opportunities for the contamination of milk arise at each stage of its journey from the cow to the consumer: soiled udders, the milkers' hands, the milk pail, the mixing vessels, the hands again, the carts, the shop, and so forth. It has been proved that the greater the cleanliness of the cow, the milker, the vessels, the cowshed, and the lower the temperature of the milk, the fewer are the bacteria present at the source of supply.

Any steps which might lead to a diminution in the consumption of raw untreated milk would be regrettable from every point of view. It would be equally regrettable if pasteurisation became general, as there might be a tendency for less careful measures to be adopted in order to obtain a cleaner milk-supply at its source. It is by no means certain that pasteurisation does not cause changes in milk which lessen its nutritive value, whether by destruction of vitamins or by the reduction of the lime contents which are so necessary for the building up of bone structure in young children.

I would therefore plead for, first, universal help and encouragement in the increased production of a cleaner raw milk at a reasonable cost; secondly, an increased consumption of such milk by a reassured public; and thirdly, a repetition and continuance of such competitions as I have referred to above. If such objects can be obtained, and I feel sure that they can be, a great step forward will have been taken towards the future success of the dairy industry and in an improvement of the general public health of the community.

A DESERVING CHARITY.

WE are happy to draw attention to the annual dinner of the Newsvendors' Benevolent and Provident Institution, which will be held at the Hotel Cecil, London, on Nov. 4th. The institution was established in 1839, and there are at present 79 pensioners, whose welfare is constantly borne in mind. Sick parents are sent to convalescent homes, orphan children are cared for in selected institutions, and financial help is given in cases of need.

"ALVUS ADSTRICTA."

Now that intestinal stasis is suggested as a predisposing cause of cancer, Dr. Isaac George writes from Esperance, West Australia, to remind us that he published in THE LANCET of Jan. 30th, 1904 (p. 345), a letter suggesting that the constant absorption of retained fæces must have an effect upon active cell life and produce changes leading to increased action and ultimate madness of rapid multiplication. "Every constipated individual does not get cancer; but does every person exposed to the tubercle bacillus get tubercle?" Only a certain number fall by the way.

AN IMPROVISED DRIP-FEED REGULATOR FOR CONTINUOUS SALINE ADMINISTRATION.

Dr. B. Gluck, resident medical officer at the Kent and Canterbury Hospital, writes: "Continuous rectal administration of saline has many advantages over other methods, both as regards effect and ease of giving. The apparatus can easily be improvised from a thermos flask and some glass and rubber tubing, but a visible drip-feed is essential. Both the Canny Ryall and the Laurie regulators are liable to break—generally just when required—and then may take some time to replace. The following can be made in a few minutes: A piece of glass tubing about 3 in. long is closed at one end with a small cork and a serum needle pushed through. A needle with tap, as used for subcutaneous saline, is an advantage, but otherwise the flow can be regulated to the required number of drops per minute by means of a screw clamp on the rubber tubing."

GREEN APPLES.

IT is accepted as an axiom by mothers and complacent neighbours that boys who eat large quantities of unripe fruit, especially apples, get colic. The belief is well founded, but on tradition and experience rather than on accurate knowledge of the exciting cause of the pain. The curious widespread acceptance of this sequence as inevitable, natural, and not dangerous—mothers can see a white-faced, guilty son flatten himself face downwards on the floor, or writhe on a couch with thighs strongly flexed, and remain undisturbed—has its advantages; for the family practitioner, if called upon to explain exactly why green apples give rise to colic, would consult in vain his learned books of reference. A physician of the new scientific school recently approached directly on the subject by an aggrieved victim murmured with great effect that it was a mystery. The much more frequent question from the irate parent, secretly annoyed with Providence for letting him down, as to how Freddy could have escaped consequences, can only be parried by a reference to Freddy's excellent inherited constitution; for it must be admitted that the reason why intestinal pain should so often follow on the consumption of unripe fruit is obscure. We know very little about the ripening process in fruit, and such information as we have hardly bears upon this subject. Incidentally, the very meaning of the term ripeness as commonly used is not a simple one; with regard to many fruits it is for practical purposes the stage at which we like to eat them—and that does not apply, for example, to medlars.

The main facts known about the ripening of the apple are that in the immature apple there is a quantity of starch which goes on increasing to a maximum, and then falls off to zero. On the other hand, the amount of sugar, chiefly lævulose, begins to increase as the starch diminishes, and for this reason starch is regarded as being the source of the sugar. From these facts we can get no help, since large quantities of starchy food can be taken with impunity by the young. Attempts have been made to incriminate the sourness or "acidity" of unripe apples. This certainly diminishes during the ripening process, but it is never great enough to warrant a suggestion that it could not easily be neutralised in the course of digestion. There remains a possibility that, on the analogy of the aperient action of salts of vegetable acids, such as tartrates and citrates in sufficient quantities, malic acid may have gripe-provoking properties, even when neutralised, but this does not seem very convincing. If the amount of malic acid in a given quantity of unripe apples were calculated, neutralised, and administered to a youthful volunteer, this point at least could be cleared up. In some fruits, again, there occurs a definite toxic principle, for example a glucoside, but there are no grounds for believing that unripe apples contain any such principle, and in any case it would be necessary to assume that it is spirited away or burnt up in the ripening process. Perhaps the least unconvincing explanation offered is a mechanical one—that the amount of indigestible matter per cubic centimetre is so much greater than in a ripe fruit, where the cells contain more water and pulp between their cellulose walls. During the ripening process there is, of course, an actual change in the cell-wall (the so-called middle lamella), which causes a loosening of the binding material between individual cells, and as the result of the softening characteristic of the process, the tissues form a mush much more readily than when the fruit is hard and unripe. In green apples there is almost a solid mass of indigestible matter, and however well masticated, it can scarcely fail to reach the bowel in hard, solid lumps.

We are hardly justified in suggesting to any young patient that he should consume salts of malic acid corresponding to 24 green apples, still less in commanding him to eat an equivalent number of green apples after they have been passed through a mincing machine and a sieve. The experimental method therefore cannot, as in so many clinical problems, be used to elucidate the matter. Dietetic faddists should note, however, that while a diet of unripe apples may be regarded as one almost wholly indigestible, it may be no more indiscreet than the habitual consumption of an almost wholly digestible diet, which leaves no residue behind to promote peristalsis. There must be a mean suited for each individual, which again will vary with his age and general state of health. It is for each one of us to ascertain for himself the relative proportion of digestible and indigestible food which goes to make up a satisfying, nutritious, and sufficiently laxative diet.

THE RESULTS OF TREATMENT IN SANATORIA.

To the Editor of THE LANCET.

SIR,—In your annotation (THE LANCET, August 2nd, p. 227) on the Medical Research Council's inquiry into the results of hygienic-dietetic treatment, as carried out in a well-run sanatorium, it is admitted that these results are difficult to assess. I should like pointedly to ask the question, Are we sure that sanatorium treatment is economically sound? Admitting that 80 per cent. of the best sanatorium patients are alive ten years after discharge, do we know how many of them would be dead if they had received equally skilled treatment at home? The Framingham figures suggest that there are ten active cases to each death from tuberculosis, from which it may be inferred that many cases recover undiagnosed and untreated. As a tuberculous subject myself, without prejudice against the sanatorium, I feel sure that I should not have got well so quickly if I had been separated from wife and children. It seems to me we need a carefully controlled experiment before it can be asserted how much it costs in sanatorium treatment to save a life.—I am, Sir, yours faithfully,

MEDICUS.

Sept. 11th, 1924.

⁂ The writer of this letter seems to us to belong to the small class of those who can carry out a course of strict hygienic-dietetic treatment without close supervision. To so do with success implies not only the material means but also the knowledge of the daily routine, and the will to carry through a régime of self-denial. At least 90 per cent. of patients at public sanatoriums lack the means to carry on at home, and of the remainder few, we believe, would be likely to see the matter through. In the experience of sanatorium doctors daily encouragement is an essential part of successful treatment. Outside sanatoriums, it would be hard to find any considerable body of practitioners competent or willing to undertake the supervision —ED. L.

PUBLIC HEALTH IN GAMBIA.

IN the official report for 1923 on Gambia, which is the smallest but the oldest possession of Great Britain in Africa, it is stated that no case of plague was reported. Cases of small-pox occurred from March to July, but owing to vaccination and immediate measures for isolation, the outbreak was not of a serious character. The general death-rate of the colony was 43 per 1000, and the birth-rate 26 per 1000. Only thrice in the last 20 years have the births been more numerous than the deaths. There were a great many deaths from tetanus. Infant mortality showed a slight improvement, there being 498 deaths as compared with 502 in 1922. During July, instead of the previous ten years' average of 7·6 inches, 27·49 inches of rain were recorded, and this was followed by 24·10 inches in August. About a quarter of the 400 acres covered by Bathurst (the chief town) is liable to annual flooding; in 1923 the proportion was greatly increased and the period prolonged. The standard of health in Bathurst was lowered, probably owing to the excessive damp. The increase of infant mortality from an average of 7 per month for the first six months of the year to 29 in July speaks for itself. There are five medical officers on the staff, one of whom resides in the Protectorate during most of the year. Out-patients treated at the Bathurst Hospital numbered 8712 and in-patients 596. There was an epidemic of influenza during October and November, but the case-mortality happily was small. A mother and child welfare committee has been started, and clinics in connexion with the same have been instituted at the hospital. Two additional African nurses have been appointed, and a new maternity ward has been erected.

The Diagnosis OF ACUTE ABDOMINAL ILLNESS IN CHILDREN.

A Post-Graduate Lecture given at St. Mary's Hospital Medical School on Oct. 6th, 1924,

BY GORDON BRYAN, *M.C.*, F.R.C.S. ENG.,
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To deal with so wide a subject as that of my lecture I must, of course, in the time at my disposal, confine myself to the consideration of a few only of its aspects; I have, therefore, attempted to select those rather of everyday interest and practical importance, but I discuss these with some diffidence, for I realise that your work as family practitioners gives you opportunities among children to some extent denied to the consultant.

It is obvious that there are certain differences between the ways in which abdominal conditions present themselves in adults and in children; in some respects the diagnostic problems of children are simpler, in other respects the difficulties are greater than in adults. In older patients, for instance, we place great reliance on the history and the subjective symptoms, which in children may be of little assistance. A detailed history, patiently elicited without leading questions, will often give the clue to an abdominal diagnosis; but a child is usually unable to give an accurate account of his illness, and may be too shy or too young to describe subjective symptoms at all definitely. In these matters the parent or nurse can be useful, but her description of the illness may be, and often is, indefinite and liable to exaggeration. The young patient, however, should always be asked to point to the pain, and he can usually be relied upon to localise this with some accuracy if it is in his abdomen.

THE ONSET.

In adults, again, the onset of acute abdominal illness is generally marked by symptoms which point directly to the abdomen, whereas there are many exceptions to this rule in children; in these early years most abdominal emergencies are due to lesions of the alimentary canal, and yet it is not uncommon for the most obvious symptoms of onset to direct attention elsewhere. For instance, the local condition may be masked by the intensity of early toxæmia, or the symptoms may indicate disease of the lower limb or of the urinary tract rather than of the intestines.

In his examination, the consultant who is a stranger to the child is in some degree handicapped; on the other hand, in arriving at a decision he may have some advantage over the regular medical attendant; with the latter the child is likely to be sufficiently familiar to give his confidence and allow a thorough examination, whereas with a stranger the little patient is likely to be shy and frightened, so that extra time must be allowed for quietly gaining his trust before the objective examination is commenced. The consultant, however, has an advantage in seeing him with a fresh and unbiased mind, for (as has often been pointed out before) frequent attendances for previous trivial ailments and repeated visits during the illness of the moment are apt to produce prejudice or indecision—the state of mind that has been called by John Fraser "clinical staleness"; so that we may impress on ourselves the necessity of the doctor being constantly on his guard against overlooking new developments of the disease, and the progress of signs and symptoms already noticed at previous visits. Also, the child's vivid memory of the first examination often causes sufficient fear to make subsequent investigations more difficult, and for this reason it is of supreme importance that the primary examination should be particularly thorough, and it should be our definite aim to arrive at any rate at a tentative diagnosis on this occasion. While the condition is in doubt, let me again lay stress on the importance at each visit of consciously trying to free one's mind of previous impressions, so as to avoid that biased judgment that I have already mentioned. Again, as a general rule, one may say that it is more important in children than in adults to diagnose acute abdominal disease promptly, because children are less able to withstand the effects of disease, and the delicacy of their tissues makes surgical intervention of special urgency in many cases. The general effects of acute abdominal inflammation are likely to be very severe, and toxæmia, shock, and collapse may reduce a child to a dangerous state in a very few hours.

OBJECTIVE METHODS OF EXAMINATION.

Of the objective methods of examination that are available in acute abdominal illness, in children, palpation of the abdomen and rectal examination are of most importance; in every case also the chest must be carefully examined and the urine must be tested. In palpating the abdomen three signs are to be borne in mind especially—the situation of the maximum tenderness, confirming any information already given by the patient as to the point of greatest pain, general or localised rigidity, and the presence of a palpable tumour.

To make a satisfactory *examination of the abdomen* of a child, especially the nervous or spoilt child, or one frightened by previous investigation, one must gain his confidence, and for this purpose one must have his full attention. It therefore often becomes necessary to exclude parents from the room during the objective examination; when called in as a stranger to the household one may feel a little diffidence in this matter, but tact and the presence of the regular practitioner usually make it possible for the consultant to examine the patient away from the relations. Even then it is not uncommon for children to resist examination so obstinately that palpation in the ordinary way is impossible, and in these cases very light anæsthesia—just sufficient to quieten the child but not enough to mask abdominal rigidity—will prove of the greatest value. In suspected intussusception also anæsthesia is often necessary for the palpation of a tumour or to exclude this possibility.

As to *rectal examination*, I feel that I cannot stress too strongly the value of this method of investigating a child's abdomen; it must always be employed in cases with acute symptoms pointing to abdomen or hip-joint. I have noticed sometimes that newly-appointed house surgeons at the Children's Hospital show some hesitation in examining the rectum of an acutely ill child, until it is pointed out how comparatively little discomfort is caused to a child by this procedure. Certainly it may be expected to frighten the patient at first, but if the finger is introduced slowly and then the examiner waits and reassures the child until he is quiet, a very thorough exploration of the pelvis can be made; the sphincter ani in childhood is usually lax and the small size of the pelvis and delicacy of the abdominal wall enable one to approximate the rectal finger to the hand outside very closely, so that the possibility of an inflamed viscus in the pelvis can be excluded with more certainty than is always possible in adult cases.

I must mention two important *aspects of the urine* examination that are of special importance in childhood: they are the possibility of acetonæmia and signs of pyelitis. A simple test for acetone is to add to the urine in a test-tube an equal quantity of a saturated solution of ammonium sulphate, and then a few drops of strong ammonia; a small quantity of a 5 per cent. solution of sodium nitroprusside produces a deep purple colour if acetone is present. In a case of pyelitis the urine is acid and opalescent; a drop taken from the centre of the specimen and examined with the microscope will show the presence of pus cells and *Bacillus coli* if the ureter of the affected kidney is patent.

DIFFERENTIATION.

The surgical possibilities of acute abdominal illness are less numerous in the early years than in adults, for, of course, we can exclude large groups of diseases common in adult life, such as malignant growths of the colon, chronic ulceration of stomach and duodenum, and chronic disease of the gall-bladder. There are, on the other hand, certain emergencies which almost exclusively belong to infancy and childhood, of which I may instance intussusception and the effects of certain errors of development of the alimentary canal.

Selecting, then, some of the acute illnesses of surgical importance which occur frequently among children, we must discuss appendicitis; peritonitis in its pneumococcal form; the later effects of abdominal tuberculosis, and especially intestinal obstruction and mesenteric adenitis; volvulus, intussusception, and strangulated hernia; iliac abscess, in addition to the variety resulting from appendicitis; acute pyelitis; abdominal influenza and simple colic; and acute acetonæmia or cyclic vomiting.

APPENDICITIS IN ITS VARIOUS FORMS.

The commonest surgical emergencies may be considered the most important, so I need make no apology for dealing first with certain aspects of appendicitis in children. The clinical picture varies according to the position that the appendix occupies in different cases; when it lies in its commonest position in the right iliac region we may expect a fairly typical picture in children, for they are less liable to the confusing influence of outside factors that often are present in adults, particularly concurrent disease elsewhere. The order of incidence of the early symptoms is of great importance in the diagnosis; Murphy called attention to the way in which these symptoms follow one another in the typical order of *midline pain, vomiting, right-sided pain,* and *fever.* In children, when dealing with the first attack as we so often are, there is frequently a history of preceding infection elsewhere, particularly of the tonsils. The initial pain is either generalised or localised to the epigastric or umbilical region.

Vomiting in children near the commencement of an attack of appendicitis is almost invariable, but it is sometimes absent when the appendix is retro-colic and shut off from the peritoneum, and occasionally in pelvic cases. In adults, on the other hand, this symptom is replaced by nausea or retching. Persistence of the vomiting in a child indicates distension of the organ, and should bring the risk of early perforation to our minds. When the pain shifts to the right side of the abdomen tenderness and some degree of rigidity will supervene. The early fever of appendicitis in the young is usually higher than in adults.

Of the physical signs the strongest positive evidence one obtains in the early stages is the palpation of a tender and swollen appendix through the abdominal wall; in children, when the appendix is in its typical situation, one can feel it with the flat of the hand in a large proportion of cases, even if rigidity is present. Patience may be required, for one often has to wait 15 minutes or more with the hand on the abdomen until the child breathes freely and partially relaxes his abdominal muscles; but the time is well spent, for one is enabled to advise immediate operation with a special feeling of confidence in such cases.

But it is not unusual for the appendix to lie in other situations, and the symptoms will vary accordingly. We must therefore briefly consider those cases in which the appendix lies in the pelvis, behind the termination of the ileum and its mesentery, behind the cæcum or ascending colon, and high up under the liver in association with an undescended cæcum.

In *pelvic appendicitis* there are certain special symptoms and signs, particularly in the early stages, which may distract the attention of the parents and even of the doctor from the alimentary canal, and delay correct diagnosis. Pain on micturition and frequency are common symptoms of pelvic appendicitis in the young, and may be so prominent as to lead to errors of diagnosis. I recall the typical case of a baby of 18 months who was admitted to hospital because he screamed with pain whenever he passed urine; this was the only symptom noticed and the possibility of vesical calculus had been suggested. On our way to see the case I told the dressers that appendicitis was the commonest cause of suddenly painful micturition in young children, and bimanual examination revealed the presence of a pelvic appendix abscess. Diarrhœa is another early symptom from the close relation of the inflamed organ to the rectum; it is apt to recur at a later stage if the condition goes on to abscess formation. Abdominal examination may give little assistance, but there is usually some tenderness above the pubis close to the midline.

Before leaving the subject of pelvic appendicitis, let me mention the obturator sign—pain produced by rotating inwards the flexed right thigh—for this brings to mind a certain type of onset in children, in which the possibility of the presence of appendicitis may be entirely overlooked. The child complains of pain in the right thigh or knee, or is noticed by the parent to be limping; on examination of the hip and knee nothing definite is found, but examination of the abdomen sometimes reveals slight hypogastric tenderness. Rectal examination shows the true nature of the case, for a swollen, tender appendix is felt on the right side of the pelvis. Several such cases have limped into my out-patient departments, and this condition must always be kept in mind when examining a child with pain of acute onset in the right lower limb.

The Retro-ileal Appendix.—Here the appendix lies behind the last part of the ileum and its mesentery, and causes the special symptoms of acute, though partial, obstruction of the small intestine. Vomiting is severe and persists to a later stage than is usual with the ordinary iliac type of appendix; the pain is spasmodic and the small intestine soon becomes distended. These two factors lead to early exhaustion and a special severity of general symptoms, as indicated by the loss of tissue fluids from the face and the rapidly rising pulse-rate. The maximum pain and tenderness are situated at or near the middle line, but there is often very little rigidity until a late stage of the illness, for the distended intestinal coils form a cushion separating the appendix from the abdominal wall and protecting it from palpation. This type of appendicitis is to be regarded as specially dangerous for several reasons—the diagnosis is difficult and apt to be delayed; in fact, a small retro-mesenteric abscess may not be suspected at all until it ruptures into the general peritoneal cavity. In this type, too, the protective omentum, so valuable in shutting off infection, is kept out of the way by the coils of intestine below it; again, the meso-appendix is short and œdematous and causes special technical difficulties in the removal of the offending organ and the control of its vessels. Lastly, there is a liability to the development of fæcal fistula during the after-treatment, and this is a less trivial complication in children than in adults. For these cases an adequate incision is particularly indicated, and consequently there may be more trouble than usual from sloughing of the abdominal wall and its resultant toxæmia.

With the *retro-cæcal or retro-colic appendix* there is usually present the congenital structure known as Jackson's membrane, which passes from the front of the cæcum and ascending colon to the right side of the abdominal wall, and separates the appendix from the general peritoneal cavity. Owing to this retro-peritoneal position of the inflamed appendix there may be no initial vomiting, and there is as a rule no rigidity of the anterior abdominal wall; the special sign to be looked for is rigidity of the loin in the ilio-costal space, and this region may show bulging and œdema if the condition goes on to abscess. The close relation of the appendix to the psoas muscle gives us a sign which should be examined for with the patient turned on to his left side; attempted hyperextension of the right hip causes pain in the right abdomen or loin.

The *high appendix*, lying in relation to the liver, congenital in form, and associated with an undescended cæcum and undeveloped ascending colon, causes tenderness and rigidity of the right hypochondrium, but these signs may be obscured if the inflamed viscus lies deep under cover of the liver; such cases may be difficult to diagnose from disease above the diaphragm, for there is often inflammation of the peritoneum covering this muscle, with resultant dyspnœa, activity of the alæ nasi, and cyanosis. A sign that is often of value in distinguishing this form of abdominal inflammation from pleuro-pneumonia is the eliciting of pain on the right side of the abdomen by pressure on the abdominal muscles of the left side. The rapidity with which, in a child, appendicitis develops into a dangerous stage cannot as a rule be estimated, depending as it does on the exact state of the inflamed structure; one is frequently impressed with the delicacy and thinness of the walls of a child's appendix, allowing perforation to take place a very few hours after the appearance of the first symptom.

CONDITIONS SIMULATING APPENDICITIS.

Next, I have to mention certain varieties of acute abdominal illness in childhood which may simulate acute appendicitis somewhat closely, and in one of them especially, operation would be disastrous. I refer next, then, to acute pyelitis, and to acute acetonæmia. I use the term *acetonæmia* advisedly, rather than cyclic vomiting, for the latter name rather conveys the impression of recurrent attacks with vomiting as the main symptom. Now, every year in the early spring, I make a point of warning house surgeons to be on the look-out for cases of acetonæmia, sent to hospital with a diagnosis of acute appendicitis. Such cases, often with no history of a previous attack, usually occur about March or April in children between the ages of 3 and 6 years, and the symptoms may simulate those of appendicitis very closely. The child is suddenly seized with severe vomiting and abdominal pain; on examination of the abdomen one finds general tenderness, due, perhaps, to the effort of repeated vomiting, and the distended cæcum and liver may be specially tender; it is this right-sided localisation of maximum tenderness that causes the simulation of appendicitis. There is fever, and the child seems seriously ill and exhausted; the facial appearance is characteristic—dark and shrunken under the eyes, with general pallor contrasting with the bright-red lips. If the tongue is inspected it is found to be coated, and at the same time the odour of the breath should be noted—the characteristic sweet smell of acetone. So marked is this smell in some cases that it can be noticed on entering the room or ward in which the patient lies. The child is lethargic but sleepless, and there is usually a history of loss of energy, anorexia, thirst, and constipation going back for some days previous to the onset of acute illness. In the more severe cases there is restlessness progressing to delirium and semi-coma. The diagnosis is to be confirmed by the finding of much acetone in the urine. Among these cases the most anxious are those in which local signs indicate that the appendix is involved in the distension of the cæcum, a result, of course, of the constipation; in several such cases one has been able to palpate the appendix, and very great may be the temptation to operate under the impression that the primary condition is appendicitis and the acetonæmia is secondary. There can be no question, however, that the safer policy is to wait, for an anæsthetic is, of course, definitely contra-indicated, involving the gravest risk of the disaster of delayed anæsthetic poisoning.

We know that a small degree of acetonuria is not uncommon in children with no clinical symptoms, but revealed by examination of the urine, and this is especially common in alimentary illness; should operation be urgently needed in such cases, every precaution must be taken, and gas-oxygen in combination with local analgesia is the method of choice.

Acute pyelitis occurs in girls; unlike appendicitis, fever is the initial symptom, there may be rigors, and toxæmia is early and severe. There is tenderness high up near the middle line of the abdomen, causing simulation of appendicitis. The diagnosis rests on examination of the urine, which is acid, opalescent, and contains pus cells and bacteria.

Abdominal influenza usually commences with vomiting, and headache is a prominent symptom. I only mention this illness to give a warning against mistaking the tenderness of the abdominal muscles for rigidity from underlying peritonitis.

An attack of *simple colic* and *constipation* in a child may give rise to anxiety, for the symptoms may simulate appendicitis; the typical order of incidence of symptoms is, however, absent, there is no true rigidity, and tenderness disappears between the attacks of colic. The diagnosis is confirmed by the rapid subsidence of symptoms after the application of a hot fomentation to the abdomen and the evacuation of the bowel by an enema.

Inflammation of the ileo-cæcal lymphatic glands frequently occurs in children and causes a transient illness that may very closely resemble appendicitis. The patient is subject from time to time to attacks of acute abdominal pain, with vomiting, and right iliac tenderness and rigidity; the glands can be palpated as an indefinite mass protected by the rigid rectus muscle—a mass that cannot, as a rule, in the early stages, at any rate, be diagnosed from the tumour that is formed by an inflamed appendix wrapped round by omentum. So similar are the two conditions that operation is usually carried out, whereby the true nature of the condition is revealed. In cases seen on the first day of the illness exploration is the safest policy; if, however, the case has been kept under observation without operation for two or three days, mesenteric adenitis can be diagnosed by the fact that the signs and symptoms tend to remain unaltered during this time, whereas in acute appendicitis they advance or recede.

Iliac abscess may arise from a variety of causes; one form is due to inflammation of lymphatic glands causing an abscess immediately above Poupart's ligament, and if on the right side this simulates an appendix abscess; it is, however, possible to diagnose it by the absence of peritoneal symptoms, the presence of enlarged femoral or inguinal glands, and possibly the finding of the primary focus of infection either in the form of a septic abrasion or furuncle or a recently healed scar.

Pneumococcal Peritonitis.—In children it is the primary form of pneumococcal peritonitis with which we are concerned, and the cases fall into two classes: those of extremely acute onset and rapid progress leading to an early fatal termination, and those of less acute onset resulting in a pelvic abscess. The disease affects girls over the age of 5, who almost invariably belong to the poorer classes, and is probably due to the infection gaining access to the pelvic peritoneum through the genital tract, at any rate, in the less acute cases. The more acute ones are possibly infected through the blood-stream; in the latter class of case there is a sudden onset of acute toxæmia with abdominal pain, vomiting, and diarrhœa. So severe is the illness that the child may be delirious and even comatose in a few hours, and rapid drainage of the peritoneum offers the only hope of saving life. In the subacute form of the disease there are diarrhœa, gradually increasing fever, and signs of peritonitis in the lower part of the abdomen. An abscess becomes localised, filling the pelvis and gradually rising above its brim. Sometimes these cases are so chronic that tuberculous peritonitis is simulated, the abscess reaching as high as the costal margin and pushing the intestines up under cover of the ribs; these cases may be distinguished from tuberculous peritonitis by the absence of shifting resonance, and the fact that in spite of complete rest in bed the disease progresses, as shown by the rising hectic temperature and gradual increase in size of the abdomen.

Gonococcal peritonitis occasionally occurs in young girls; the illness has an insidious onset and closely resembles the subacute form of pneumococcal peritonitis; the diagnosis rests on the history or signs of vulvo-vaginitis and possibly the identification of the specific organism.

Intestinal Obstruction.

Turning now to intestinal obstruction, apart from defects of development which cause symptoms immediately after birth, there are four conditions of special interest and importance in childhood, *intussusception*, *volvulus of the small intestine*, obstruction from the *adhesions* of old tuberculous peritonitis, and *strangulated inguinal hernia*. The typical picture of intussusception in infancy is too well known to you to need comment here, but when no tumour can be felt the diagnosis is often difficult. During the first few hours of an attack of acute entero-colitis with bleeding from the rectum, intussusception may be suspected and somewhat difficult to exclude; in addition to the passage of blood, there is screaming from colic, and abdominal palpation is rendered inconclusive by tenderness. The diagnosis rests on the absence of the typical intermissions in the spasms of pain, the absence of a tumour, and the fact that the blood is bright red and accompanied by loose fæcal material instead of forming, by admixture with mucus, the characteristic dark-red jelly of intussusception. In doubtful cases an anæsthetic should be given in order that a thorough search for the typical tumour may be made.

The specially difficult cases of intussusception are the enteric and the colic forms, and these often are diagnosed too late for successful treatment; in the former variety, the vomiting is severe and continuous, there is rapid collapse, the appearance of blood is delayed, there is no loss of normal resistance in the right iliac fossa, and it is often very difficult to feel a tumour owing to its comparatively small size and the fact that it may be hidden away under the liver. The rare condition of retrograde enteric intussusception must be borne in mind, and in this condition there is no blood and mucus in the rectum. Colic intussusception may take a subacute form, with less severe general symptoms, as for several days there may be no obstruction to the passage of fæces; careful palpation will, however, reveal the presence of the tumour and clinch the diagnosis.

The most serious difficulty in the diagnosis of intussusception is the simulation of this condition by cases of *Henoch's purpura* in which bleeding into the wall of the bowel takes place; the patient then may have acute abdominal symptoms with partial obstruction, there is a tumour in the iliac fossa due to the infiltration of the bowel with blood, and blood and mucus are passed by rectum. The condition is commoner in boys above the usual age for intussusception, and its recognition depends on the finding of other signs of purpura, such as scattered petechial hæmorrhages of the skin, subcutaneous bruising, and a history or signs of hæmarthrosis, while the abdominal tumour lacks the typical shape and mobility of an intussusception. The diagnosis, may, however, be a matter of the greatest difficulty.

Obstruction by Adhesions.—Apart from intussusception and congenital defects of the intestine, there are a limited number of causes of acute intestinal obstruction in childhood; antecedent tuberculous peritonitis is responsible for most of the cases. Here the obstruction is rarely complete in the first attack, and there is nearly always a history of previous illnesses with vomiting, colic, and constipation, relieved after a few hours by the passage of large loose stools. If such cases have to be operated on when obstruction is complete, a serious problem arises, for in a child enterostomy offers small hope of recovery. Our aim must be, by diagnosing such cases early, with the assistance of X rays, to operate in an interval between attacks, and perform some variety of short-circuiting operation whereby the affected coils of intestine are excluded.

Volvulus in children differs from the type met with in adult life by affecting the small intestine; it occurs where there is a long mesentery with a narrow attachment. In a typical case the attack is brought on by some sudden movement, and the symptoms are those of high small intestine obstruction—severe and persistent vomiting, spasms of acute pain, and rapid collapse; it is not unusual for one or more stools to be evacuated from the intestine below the obstruction. Poynton has described cases in which acetonæmia was a predominating feature, and he shows the risk of diagnosing primary cyclic vomiting; in his cases there had been previous similar attacks, due probably to torsion of the intestine which was relieved naturally. The difficult feature of these cases is the absence of abdominal signs; owing to the rotation affecting so high a part of the small intestine there is no distension, and the poisoned and collapsed condition of the patient masks the tenderness due to the obstructed coil.

True *strangulation of a hernia* is rare in babies and small children, for though irreducibility and obstruction occur fairly commonly, the blood-supply of the intestine is rarely affected seriously. The tender tense hernia could hardly be overlooked, and the vomiting and constipation indicate the obstruction. Occasional difficulty arises in distinguishing an irreducible omental hernia from inflamed inguinal glands; in the former it is usually possible to trace the swelling into the abdomen, with the latter one can find the healed or unhealed skin lesion responsible for the infection. In doubtful cases we have the satisfaction of knowing that the diagnosis is not of great urgency owing to the absence of true strangulation; also, few of these cases need operation, for most strangulated herniæ in young children will slip back if the colon is emptied by an enema, the child is partially suspended by the legs, and a hot fomentation is applied to the swelling.

References.—John Fraser: Brit. Med. Jour., February, 1922. Poynton: The Lancet, May, 1924.

An Address

[ABRIDGED]

ON

THE IDEAL TOOTH.

Delivered at the Royal Dental Hospital, Leicester-square, London, on the Opening of Session and Presentation of Prizes, Oct. 1st, 1924,

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On a recent occasion I had the pleasure of listening to an address given by an eminent statesman to an audience made up, for the greater part, of medical men. He was in the happy position of being able to say that at no point of a long and busy life had he required help from either physician or surgeon. Such an experience must be exceptional; few men and women do reach the age of 70 without calling for medical aid. I should think that 90 out of every 100 have settled, or should have settled, several doctors' bills before reaching the age of 70. The statesman said nothing of his teeth, but if he reached the age of 70 without having to seek the aid of a dental surgeon, then his lot was better than falls to 999 out of every 1000 septuagenarians. If we were to make a survey of the dental conditions which prevail at the present time in Great Britain, confining our attention to the mouths of men and women of the age of 60 and upwards, I do not think we should find even one in a thousand who retains a full undamaged outfit of teeth, and who can boast that on no occasion has there been need of dental aid. I think that a strict survey would show us that, as a general rule, we have to visit our dentist five times for every occasion we have to call in medical aid. It would appear, then, that of all the structural systems which make up that wonderful piece of machinery, the human body, the dental system is that which is most liable to break down.

NATURE AS DESIGNER AND WORKMAN.

There was a time when the design and workmanship of our bodies commanded the unstinted admiration of anatomists. In these modern days, however, there has arisen a critical school, founded by the late Prof. Elie Metchnikoff, which calls in question both the design and workmanship of the human body. Metchnikoff held that there were glaring imperfections in the contrivance of many of its parts. He cited as an instance man's great bowel, in which are included both cæcum and appendix. He held that, so far as modern man is concerned, the presence of a great bowel was a mistake; it merely served as a filth sink; it was a constant menace to health and the cause of misery in untold millions of lives. If a liability to become disordered, to become the seat of pain and a source of misery, is a reliable index of imperfect design and workmanship of an organ or of a system of organs, then Nature's attempt to fit modern man with an efficient dentition is an utter failure. I am putting the matter from a Metchnikoffian point of view; as will be seen in the sequel I hold a brief for Nature—both as designer and workman.

It is far from uncommon to meet with men and women who in their sanest and soberest moments, when their judgments are undisturbed by pangs of pain, give utterance to the conviction that Nature's "teeth are more bother than they are worth." They are convinced that it would be better for human health, happiness, and efficiency if our jaws retained the edentulous condition of birth and that we should be better to depend, from infancy to old age, upon artificial dentures than upon Nature's efforts. Such critics are prepared to pay golden guineas for artificial teeth rather than accept Nature's two sets as a free gift. Yet, on the production of these two sets—a milk set of 20 members and a permanent set of 32—52 all told—Nature has lavished her ingenuity to the utmost. It would be strange, indeed, if Nature after spending millions of years in perfecting her dental handiwork should now turn round on modern man and undo in his body her endless endeavours to reach perfection. Is it possible that city-living man is doing something which frustrates her best efforts to give him a healthy body?

Disharmony between Structural Outfit and Civilisation.

Those who criticise Nature's dental workmanship can cite many pieces of evidence in support of their contention. They may instance the baby fretting, slobbering, restless, as it cuts its first teeth: why should the eruption of teeth be attended by pain? Then, when the milk teeth have cut and are in use, half of them, before they have done their full duty, become the subjects of caries. The teeth, which we ironically name "permanent," render their owners open to many kinds of trouble. When they cut they may find the jaws too small to give them a place in a regular series; upper and lower teeth may be so badly placed that they fail to make proper contacts in the acts of biting and chewing. When the "permanent" teeth have come into use, half of them fall victims to caries before the age of 50 is reached. If they escape caries they may fall victims to pyorrhœa, or gumboils may form at their roots. The four final molars—the wisdom teeth—may be suppressed altogether, or if formed, they may fail to erupt or erupt painfully long after youth is past. The rarest sight in modern mouths is a tooth worn to its neck from use. When modern man enumerates his dental woes, it is clear that either Nature is neglecting him or he is neglecting Nature. On whichever side the fault may lie there is, without doubt, a grave disharmony between the structural outfit of man's body and the conditions with which modern civilisation has surrounded it.

The Artificial Tooth and the Natural Tooth.

Now, every form of fault-finding or criticism is idle unless we can say exactly where the fault lies and how it can be mended. Let us for a moment conceive ourselves as occupying Nature's place, and, endowed with all her powers, given the problem of evolving an ideal kind of tooth for modern man. We expect a tooth which is proof against every form of infection. The modern dentist has solved this problem; artificial dentures are liable neither to caries, pyorrhœa, nor gumboil. We expect a tooth which is painless under all circumstances; the modern dentist has solved this problem too. The ideal tooth must be so shaped as to perform its work efficiently. In this respect the modern dentist can teach Nature nothing, for he moulds artificial teeth as closely to Nature's shapes as his art will permit him. The teeth of an ideal set must be so placed that upper and lower meet in perfect apposition. The modern dentist can avoid Nature's glaring errors of malplacement, but he cannot rival her accuracy when she works in her normal mood. We expect the ideal tooth to be durable—to be made of material which will withstand 70 years of wear or more. The modern dentist has solved this problem too. The ideal tooth must be made of a material or materials, which are not only durable, but are free from brittleness; they must be able to withstand all legitimate strains and stresses without fracturing, cracking, or breaking. In this respect Nature's materials—a core of tough dentine, crowned by a covering of hard enamel—outclasses all modern inventions. She has hit on ideal substances and arranged them in our teeth in an ideal manner. Further, the ideal tooth has to be firmly fixed in the jaws, and must give the feeling when placed in our mouths of being, not a foreign thing, but an intrinsic part of our bodies. The best of artificial dentures falls far short of this ideal, yet it is one which Nature, in her normal moods, can attain with certainty. The most eminent and skilful of modern dentists would never dream of claiming that his best can rival Nature's best. I cannot believe that the day will ever come when men and women will prefer an artificial denture to Nature's outfit, except under the pressure of necessity.

The Function of the Pulp.

In our search for an ideal dentition, then, we cannot conceive any better than that invented by Nature. Can we suggest any improvement in detail? The first which occurs to us is to get rid of the pulp and of the pulp cavity. This is exactly what the dentist does when caries has eaten into the heart of a tooth and set up intolerable pain. Why has this operation not been forestalled by Nature? I have before me now the jaws of men who lived in Babylonia some 6000 years ago. The crowns of the teeth are almost worn away from use, and yet the pulp cavities are not exposed; as erosion wore the crowns down, the odontoblasts of the pulp laid down secondary dentine until the cavities became obliterated. Why do these dentine builders need the pressures and strains of use to set them to work? Why are the teeth furnished with pulp? The answer is that a tooth is a living thing; every element of it needs nourishment—even the enamel prisms. The pulp is Nature's means of keeping the tooth flooded with the elements needed for the sustenance of life. If the cavity of a tooth is filled then all the nourishment which can sustain a tooth has to reach it through the periodontal membrane. A stopped tooth is not a dead tooth, but it is one which is imperfectly nourished, unfit for hard wear, and liable to atrophy and to infection. For the full health of a tooth, a pulp cavity is a necessity. Odontoblasts are sensitive to wear and react by the formation of sound secondary dentine. But Nature has not discovered a method of making them react to the insidious invasion of caries. If Nature is put to it, I dare say she may discover a method of arresting invasion of caries by the formation of secondary dentine. Meantime it has to be admitted that she has not made this discovery, and that with the death or destruction of its pulp a tooth loses its full condition of health.

The Nerves of a Tooth.

Why should teeth be so richly supplied with nerves? We know the curse these nerves bring to us when teeth become diseased, but where is the blessing which should accrue to us from this rich nerve-supply in health? It does not seem to me that we give a satisfactory reason for the presence of such nerves by saying that they are protective—that a sensitive pulp prevents us from neglecting or from abusing our teeth. Sir James Mackenzie holds that pain, when it occurs as the result of disease, is usually a manifestation of a disordered reflex. What reflexes could be centred in or round a tooth? One can conceive, although there is no evidence on the point, that end-organs or receptors of reflexes which regulate the muscles of mastication may be situated in the periodontal membrane, but one does not expect such receptors to occur in the pulp cavity. Yet they may, for when we bite or chew hard or tough substances there must be a certain degree of deformation of the tooth and of the pulp cavity, and such deformation may be registered by nerve terminals in the pulp. An experience with which we are all familiar throws some light on this point. A tooth may pass into a condition where the application of heat or of cold will elicit a severe toothache. When heat or cold is applied to a tooth there must be an expansion or contraction of its body, extremely slight in degree, yet sufficient to render its pulp cavity just too large or just too small for its contents. One would suppose that to adjust the size of the pulp to its cavity there must be a local vaso-motor reflex which accommodates the pulp to the size of its cavity. When a tooth becomes diseased this reflex is lost or disordered, and hence the application of heat or of cold causes stretching or compression of the pulp and thus elicits pain. Even if we succeed in explaining how pain is elicited in toothache, we are still far from giving a satisfactory answer to the question, Why is pain elicited? All we can say at present is that if a tooth is to be healthy and durable it must have a pulp, and if it is furnished with a pulp, then it must be provided with nerves and the price of nerves is a liability to pain. If we accept Nature's dentition, we must be prepared to purchase its overwhelming benefits at the risk of suffering.

NECESSITY OF STUDYING NATURE'S METHODS.

In our search for an ideal tooth for modern man we cannot conceive anything so good as Nature's best. We cannot suggest any improvement in her designs, materials, or manner of production. Why, then, should she serve modern civilised man so indifferently while the wild apes of the jungle enjoy her superior workmanship? The apes' teeth, so long as their natural lives are led, are almost proof against caries and against pyorrhœa; not absolutely but nearly. It is only when the crowns are worn down and the formation of secondary dentine is inadequate that they become liable to gumboil and root abscess. Yet apes never brush their teeth; their children attend no dental clinic. Whereas we poor human beings, take what pains we may, find ourselves the subjects of the grossest forms of dental disorders. Is it that Nature is really scamping her work so far as the teeth of city-living man is concerned, or is it that city-living man in his ignorance is not supplying Nature with the materials—or materials in the proper ratio and condition—out of which she has been accustomed to fashion teeth? Discoveries which have been made by Dr. and Mrs. Mellanby seem to show this is the case. We are supplying the clay and withholding the straw which she needs for the fashioning of her dental edifices. Our bad teeth are not due to Nature's bungling, but to our ignorance of her ways. If we are to have sound teeth we have to study Nature's methods with infinite patience, and humour her by supplying the materials and conditions under which she can do her best work. Even human workmen demand such terms.

It is often said that degeneration has overtaken our teeth because we do not use them as early man did. It is most probable that use and wear harden the texture of a tooth, for teeth are living things, and all living things react to use. Use may be a condition of preservation of the fully erupted tooth, but I do not think that lack of use through countless generations has caused the reduction in the size and number of teeth in modern man. Since her very earliest endeavours to fashion mammalian teeth Nature has brought them into use after their chewing crowns were fully formed; if there was inheritance of the effects of use, crowns should be formed with their tips worn off. The units of a dentition are assembled, just as are the units of a motor-car—all fully finished and ready to fit into place before they are ever put in movement. Tooth after tooth erupts to find perfectly fitting opponents ready to come into contact with them. We do not know the machinery which Nature uses to coördinate the parts of her dental mills, but it is certainly not the mechanical one of usage.

AN OBSCURE MECHANISM.

There is some mechanism at work in the human body which tends to weaken the jaws and teeth as it strengthens the powers of the brain. The exact nature of this mechanism remains obscure. One could conceive a developmental correlationship between brain and teeth—one which exercised a restraining influence on teeth as it favoured an increase of brain. One, however, is tempted to suppose that the reduction of the teeth has not been brought about in this way, but by the increased powers of the brain altering the conditions under which the development and growth of man's body takes place. The discovery of fire and of cooking must have wrought a revolution in the conditions of human life—and subjected the teeth and the whole alimentary tract of evolving man to a new set of conditions, demanding fresh adaptations. We do not know at what period of man's evolution the discovery of fire was made. In Rhodesian man, one of the most primitive and simian of human types yet discovered, massive robust-looking teeth are ravaged by caries and dental abscess. His remains lay in the utmost recess of a great cave which was chokeful of animal bones—apparently the residue of human feasts. It does not seem too much to suppose if we are to account for the condition of the teeth of Rhodesian man, that he was suffering, just as we are, from the early experience of new conditions. Had he learned the secrets of fire and been seduced into the use of cooked food? Perhaps, like us, he blamed Nature for his misfortunes.

CONCLUSION.

Thus our search for an ideal dentition leads us to the conclusion that the best conceivable, the best obtainable, is that which Nature has to offer every one of us. Only we must realise that she lays down conditions, conditions which have to be discovered as well as accepted and observed. We have to abandon our present mood—the Metchnikoffian mood—in which we lay down conditions which we expect Nature to observe. We expect her to keep up the standard of her dental workmanship when we swamp our own bodies, as well as the developing tissues of the fœtus, and infant, with substances she finds difficult to handle and utilise. We demand that she will adjust at once her adaptational machinery to our new modes of living and blame her when she fails to respond. It is all so childish and so unreasonable! All she asks of us is that we shall understand the method of her workmanship and the materials which she requires in the fashioning of teeth. And if we patiently apply ourselves to her behests I, for one, believe she will give us the dentition we deserve.

AN APPARATUS FOR USE IN THE SIGMA REACTION.

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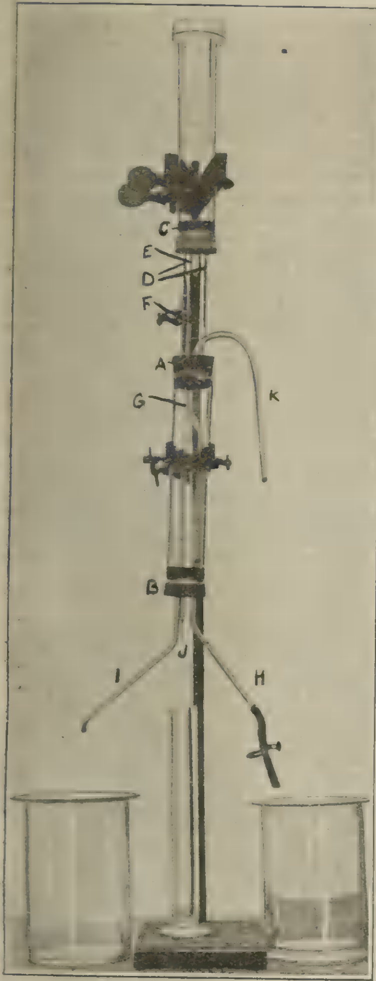

In diluting the antigen for use in the Sigma reaction it is necessary to allow saline to drop into the alcoholic solution at constant rate. In place of the floating syphon used by Dreyer and Ward, I have, for the past 18 months, used the following apparatus, and I believe that it is more satisfactory and less troublesome than the floating syphon. It consists of two cylinders (about 20 by 4·5 cm.), the lower of which is provided with two rubber bungs (A and B), the upper with one (C). Through holes in A and C pass two glass rods (D) which help to stabilise the apparatus. The upper surface of C is cut so that the fluid in the upper cylinder is able to drain out completely through the short glass tube E. This is connected by a rubber tube F, on which is a screw clip, with the tube G. This passes through A and reaches almost to the bottom of the lower cylinder. The surface of the bung is cut in the same way as C to drain the cylinder through the glass tube H, which ends in a rubber tube with a spring clip. Through B also passes the tube I, the height of which in the cylinder can be varied. J is the terminal portion of a dropping pipette. The curved tube K admits air into the lower cylinder but excludes dust.

The upper cylinder is filled with saline, which flows through E, F, and G, and rises in the lower cylinder. When it reaches the level of the top of the tube I, it flows through this and escapes. The clip on F is adjusted until the saline which is dropping from J also drops slowly from the end of I. So long as the upper cylinder contains saline, the head of fluid acting on J will remain constant. Using a graduated cylinder and a stop-watch, the rate of dropping from J is adjusted by pushing the tube I further through B, or by withdrawing it until exactly 34·0 c.cm. of saline drops from J in 4 min. 30 sec. Once adjusted the apparatus works accurately when required without further alterations of I. When the antigen is made, the upper cylinder is emptied by opening the clip on F, and the lower by releasing the clip on H. It is allowed to drain for a few minutes. The entry of dust, when the apparatus is not in use, is prevented by an inverted Petri dish which covers the opening of the upper cylinder. When again required, the whole is rinsed through with sterile saline a couple of times, and is then ready for use.

ON INFLUENZAL ARTHRITIS.

WITH NOTES OF THREE CASES OF INFECTION OF THE KNEE-JOINT IN CHILDREN.

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Joint infections complicating or following influenza are one of the rarer surgical complications of this disease, since after an extensive search through a very large literature we have discovered only three recorded cases in which the influenza bacillus was actually obtained in pure culture from the joints.

Slawyk [1] (1899) recorded a case in a baby with an abscess on the dorsum of the right hand and an arthritis of the left ankle-joint. This case terminated fatally with meningitis. The organism was obtained in pure culture from the pus and cerebro-spinal fluid.

The second case was recorded by Dudgeon and Adams [2] (1907) in a baby with suppurative arthritis of the left elbow- and right hip-joints, causing gross disorganisation and necrosis. This case ended fatally with meningitis, the organism being obtained in pure culture from the cerebro-spinal fluid and the affected joints.

Henry [3] in 1912 recorded a series of nine cases of "meningitis due to hæmophilic organisms—so-called influenzal meningitis?" In one of these cases, a child of 16 months, the knees and ankles were swollen, but on the following day, when the child was admitted to hospital with obvious meningitis, the joint swellings had disappeared. Death occurred within a week, and post mortem an influenza-like bacillus was obtained from the brain, spinal cord, heart blood, liver, kidney, and lungs. Two guinea-pigs were inoculated with 18-hour-old cultures of the organism; the one inoculated subcutaneously was unaffected, the other, inoculated intraperitoneally, died in 24 hours, and the organism was recovered from the peritoneum and heart blood. There are two further points of bacteriological interest in this case: (1) The fluid obtained by lumbar puncture during life is said to have shown badly-staining intracellular diplococci, which were regarded as meningococci; and (2) cultures on blood-agar showed well-marked filament formation after 18 hours' incubation, and after 24 and 30 hours tangled masses of filaments. Maitland and Cameron [4] (1921) refer to a case in which the *Bacillus influenzæ* had been isolated from the blood and infected knee of a child by Dr. Erb, of the Hospital for Sick Children, Toronto. No clinical details are given.

Other cases have been described as complications or following influenza, but they lack conclusive bacteriological support. The general opinion seems to be that the joint infections are usually non-purulent.

Schmieden [5] (1919) says that frequently there are only passing effusions which continue for a few weeks and are then spontaneously absorbed. In other cases some callous thickening and contractures may result. He compares them to mild forms of gonorrhœal arthritis, and Prader [6] (1920) described four cases of acute synovitis with rarefying osteitis having the type of gonorrhœal arthritis.

In contrast to the non-purulent cases, several cases of suppurative arthritis have been described, some ending in gross disorganisation of the joint or joints involved, with necrosis of their bony parts, some even terminating in death. Some of these have been streptococcal infections.

Prader describes five such cases of suppurative arthritis, two of the knee-joint, one ending fatally in spite of amputation, and three of the hip-joint, needing resections of the head of the femur, two ending fatally. He also described three cases of sero-purulent exudation into the knee-joint, resolving on aspiration, one with slight subluxation, but streptococci and diplococci were found. Roello [7] (1921) recorded two cases of suppurative arthritis in children, 13 months and 3 years old respectively. In one case of the right shoulder-joint, Gram-negative diplococci were found; from the other, of the left elbow- and right hip-joints, a diplo-streptococcus was isolated. Complete recovery took place in the former, in the latter 2 cm. shortening of the leg remained. Khàrina-Mannucci [8] (1919) reports a case of suppurative arthritis of the right shoulder-joint in a baby of 10 months, recovering from influenza with respiratory complications. A short bacillus resembling *B. pyocyaneus* was grown. Complete resolution occurred with an autogenous vaccine, without recourse to operation.

Since during an influenza epidemic almost any unexplained febrile attack is very often diagnosed as influenza, it is conceivable that some of such cases are caused by absorption of toxins from some unrecognised source of infection, possibly the teeth, and, giving rise to symptoms clinically resembling influenza, be diagnosed as such; a secondary lesion complicating or following would be thus termed "influenzal." It seems scarcely scientific or justifiable to ascribe lesions to influenza unless the specific organism be obtained from the pus or be found in the primary illness.

Clinical Records.

In all three of the cases recorded in this paper the infection was of the knee-joint, and it is remarkable that two of them were admitted on the same day. A Gram-negative bacillus resembling *B. influenzæ* was obtained in pure culture from all of them, and in the third case it was also isolated from the cerebro-spinal fluid.

Onset.—In only one case (Case 3) was the joint infection preceded by an illness which might have been influenza; in this case there was a cold a week before which developed into pneumonia. The other two developed as an ordinary acute synovitis of the knee-joint with sudden onset of pain in the joint, general ill-health, and feverishness.

Type of Infection.—On admission they presented the appearance of an acute synovitis, raised temperature, and a distended and acutely tender joint. On exploratory puncture thick creamy pus was obtained in Cases 1 and 3, and thin pus with a faint greenish tint in Case 2. It may be noted that the exudate into the meninges of Case 3 found post mortem was of a pale green colour. On opening the joints a suppurative synovitis was found without any erosion of cartilage or other joint structure. In Case 1 on admission there were no bony changes, but subsequently an osteitis developed on the outer side of the lower third of the femur, and a later skiagram showed this in process of healing. A skiagram of Case 2 showed a doubtful area of rarefaction on the inner side of the femoral diaphysis. Case 3 showed no bony changes.

Treatment.—Three methods of treatment were carried out. Case 1 was treated by the Carrel-Dakin method of irrigation. Case 2 was opened and the joint washed out for 10 minutes with 2 per cent. chloramine in saline and then closed. Case 3 was at first treated by repeated aspirations, but no benefit arising, the joint was opened and drained. All three methods of treatment were successful; Case 3 developed cerebro-spinal meningitis from which she died, but as far as the joint was concerned, the treatment was successful. Case 2 had a smoother convalescence than Case 1, which may be correlated with the observed difference in pathogenicity of the organisms recorded below. The treatment of election would seem to be aspiration or opening the joint, washing it out and closing it. If the temperature continues high and the general condition does not improve, and if the local signs do not subside and bacteria are still found in the joint exudate, then opening and drainage would be indicated, but this as a primary operation does not appear to be the method of choice.

Results.—Complete resolution of the joints occurred in the first two cases, and the post-mortem on Case 3 showed that, as far as the joint was concerned, this was progressing towards complete resolution.

Case 1.—Joan C., 1 year, 11 months, was admitted under Mr. H. A. T. Fairbank to the Hospital for Sick Children, Great Ormond-street, on May 4th, 1923.

History.—Commenced five days ago with pain in the right knee. Very restless with pain throughout the night, and very feverish. Joint very tender. No vomiting, bowels constipated. There was no history of any injury to the knee.

Past History.—Child much under weight. Breast-fed until 11 months old.

Condition on Admission.—Temp. 102°; pulse 160; respirations 32. Right knee-joint distended, hot, and tender. No movements allowed. A skiagram showed no bony changes.

Operation (May 4th, 1923).—Joint opened on outer side, counter incision made on the inner side. Thick creamy pus evacuated. Joint washed out with 2 per cent. chloramine in saline and Carrel-Dakin tubes inserted. May 24th: A skiagram showed osteitis on outer side of lower third of femur. 27th: Wounds healed except for a small sinus. Sinus probed and pus and blood-clot evacuated. 29th: Temp. 100°–102°. Wound probed and foul blood-clot removed. June 5th: Temp. normal, sutures removed. 14th: Skiagram showed area of rarefaction on outer and anterior aspect lower third of femur. Periosteum raised. Cortex a little more dense than at last examination, indicating a healing process; considerable swelling in joint. 18th: Discharged, wounds healed.

Pathological Investigation.—Pus greenish-yellow. Films stained by Gram's method showed numerous minute Gram-negative bacilli. No tubercle bacilli were found. Cultures on blood-agar and on T.B.E.* agar furnished a good growth of minute colonies, almost invisible to the naked eye, in 24 hours. Films of this growth showed pure Gram-negative bacilli morphologically like the Pfeiffer's bacillus. The whole of a 24-hour culture was emulsified in saline and injected intraperitoneally into a guinea-pig, which succumbed in 18 hours. The organism was recovered in cultures from the peritoneal exudate, the spleen, and the heart blood. A second specimen of pus from a "hæmatoma" or abscess was examined on May 27th, 1923, and again this bacillus was found to be present. A similar very fine growth was obtained on T.B.E. agar, which showed long and short Gram-negative bacilli and filaments. A culture on agar smeared with blood remained sterile.

Jan. 17th, 1924: The mother reports: "Perfect movement in the leg, no pain or swelling."

Case 2.—Charles M., 8 months, was admitted under Mr. G. E. Waugh to the Hospital for Sick Children on May 4th, 1923, with a history of three days irritability and crying and left knee drawn up.

Condition on Admission.—Temp. 101°; pulse 160; respirations 38. Left knee flexed, tender swelling lower third left femur, pitting on pressure. No signs of fluid in the joint.

Operation (May 4th).—Outer side lower third of femur explored, bone found healthy. Wound closed. Knee-joint aspirated, thin pus with faint greenish tint removed. Joint opened outer side of patella, about two ounces pus evacuated. Joint irrigated with 2 per cent. chloramine in saline for ten minutes. Wounds closed with interrupted salmon-gut sutures, dry sterile dressing applied. Leg put on single Thomas splint with extra knee-flexing iron, and slung. May 11th: Temp. normal. 25th: A skiagram showed a doubtful area of rarefaction inner side femoral diaphysis. 29th: Wounds healed. June 18th: Discharged, wound soundly healed. Limb straight, but flexion restricted to 20°

Pathological Investigation.—The pus was similar in appearance to that in the first case and contained many minut Gram-negative bacilli. Cultures on agar, blood serum, an on T.B.E. agar remained sterile, but a profuse growth o minute dewdrop-like colonies occurred on agar smeared wit blood. Morphologically the bacilli resembled the influenz bacillus. A 24-hour old culture was injected into a guinea-pi as in the first case, but the animal remained aliveand well.

Jan. 18th, 1924: The mother writes: "He has full movement of the knee, and is running about the floor quite well.

Case 3.—Ruth W., 1 year, was admitted under Mr. Twistington Higgins on Nov. 8th, 1923.

History.—Seen a week previously, and had a cold whic developed into pneumonia five days ago, since has been ver ill. Yesterday painful swelling of right knee noticed, pa on touching and on movement. More swollen and shin to-day. No vomiting, bowels opened.

Condition on Admission.—Temp. 103°; pulse 16 respirations 40. Child very ill. Consolidation upper half right lung. Uniform swelling of right knee-joint, no fluctu tion detected. Nov. 8th.: Aspiration of knee-joint. Sma quantity of gelatinous fluid withdrawn. 16th: Chest clea Temp. still raised. Joint distended chiefly in suprapatell pouch. Aspiration: 3 c.cm. thick pus obtained fro the suprapatellar pouch. 17th: Temp. 101°; pulse 14 respirations 36.

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* Tryptamine-blood-extract agar (Cole and Onslow's medium

Operation.—Joint opened outer side of patella. Thick pus obtained, localised to suprapatellar pouch. Joint drained. An autogenous vaccine was prepared and a dose of 10 millions given on Nov. 23rd.

Nov. 30th: Wound healed, but continuing swinging temperature. Signs of meningitis developing. Further doses of the vaccine were given on Dec. 1st and 6th, but the meningitis was then fully established and death took place on Dec. 9th.

Post-mortem Examination.—Right knee-joint: Operation wounds healed; signs of previous inflammation in suprapatellar synovial pouch. Brain and cord: Cerebro-spinal meningitis. Ventricles distended and full of a mixed watery and creamy exudate. Gram-negative bacilli were present in the pus and grew in cultures.

Pathological Investigations.—The gelatinous fluid drawn from the knee on Nov. 8th contained a few mononuclear cells. A culture in broth remained sterile after four days' incubation. 16th: The pus aspirated contained many minute Gram-negative bacilli, some of them intracellular. No tubercle bacilli found. Cultures on agar remained sterile. 17th: Many Gram-negative bacilli present in the pus and clot, also some larger forms. Cultures made on blood agar and chocolate agar; on blood agar there was a profuse growth in 24 hours of minute colonies, practically invisible to the naked eye. Films showed long and short forms of a Gram-negative bacillus, morphologically like the Pfeiffer's bacillus. The chocolate agar was sterile after 24 hours, but after 48 hours a growth similar to that on the blood agar was present. Some of the pus was injected intraperitoneally into a guinea-pig, but the animal showed no lesions after one month. The cerebro-spinal fluid was examined on several occasions. It had the usual characters of the fluid from a case of so-called influenzal meningitis. The sediment showed many cells—practically all polymorphs—and Gram-negative bacilli (resembling Pfeiffer's bacillus), some of them intracellular. Morphologically long and short Gram-negative bacilli were present. A little of the purulent sediment from the cerebro-spinal fluid (Nov. 30th) was injected intraperitoneally into a guinea-pig. The animal was ill the next day and found dead on the following day. Post mortem there were signs of peritonitis, but the organism was not recovered from the exudate.

We are indebted to Mr. Waugh, Mr. Fairbank. and Mr. Higgins for their kind permission to publish these cases.

Comments (J. F. H. S.)—1. Without bacteriological proof the relation of joint lesions with influenza is unsatisfactory.

2. The joint lesions are usually monarticular but may be multiple, and may occur weeks or months after the primary illness.

3. The general opinion seems to be that the majority of joint infections complicating or following influenza are of a benign nature, ending in complete resolution in most cases, a little thickening, and slight deformity remaining in a few. Severe suppurative arthritis may occur in a minority of cases, and some of these may prove fatal.

4. The best form of treatment is that based on conservative lines in the simpler forms—viz., fixation in a suitable splint (such as a modified Thomas splint) and slinging. Consideration must be given to movements and subsequent function as soon as the acute stage has subsided. Aspiration of the joint, repeated if necessary, is better than open drainage, which should only be carried out when the clinical signs and bacteriological indications show that aspiration is not proving successful. Opening the joint, irrigation, and primary suture may be carried out in place of aspiration with equally beneficial results. Severe suppurative arthritis must, of course, be treated on the usual lines as when occurring in other circumstances.

5. The prognosis in the simpler forms is good both as to life, &c., and as regards the function of the joints involved.

Comments (D. N.).—These three cases are of considerable interest on account of their rarity. As regards prognosis, two of our three cases recovered, while the third died of meningitis, the involved joint, however, being apparently well on the road to recovery. Two of the three previously reported cases (Slawyk, and Dudgeon and Adams) succumbed to meningitis and general infection with the *B. influenzæ*. In one case the affected joints, post mortem, showed definite inflammation of the synovial membrane with the presence of turbid fluid in the joint; whereas in the other case the affected joints were disorganised and the bones necrosed.

Ætiology of Influenzal Meningitis and Arthritis.

As regards the ætiology of these cases of so-called influenzal meningitis and arthritis, there is still considerable difference of opinion as to the identity of the isolated bacillus with Pfeiffer's bacillus. Pfeiffer[9] (1893) originally described the influenza bacillus as being found only in the nasal passages, and regarded the post-influenzal nervous symptoms as being toxic in origin. He could not demonstrate the organism in the blood. Since then, however, several observers have demonstrated the bacillus in the blood and in the exudate and pus of "influenzal" cerebro-spinal meningitis. Morphologically these bacilli resemble the original Pfeiffer bacillus, but in artificial cultures the former tend to produce more filamentous forms than the latter. On animal inoculation, too, some differences have been recorded. Whereas the Pfeiffer bacillus is not very pathogenic for animals, and when injected in massive doses may kill by toxæmia and not by septicæmia, the organisms isolated from so-called "influenzal" meningitis cases have often been found pathogenic for animals. These observations have induced some investigators (Cohen[10] (1909), Henry [3]) to regard the organism of meningitis as being different from Pfeiffer's bacillus, which, however, it resembles closely in morphology and staining reactions. The case reported by Slawyk does not bear out this view. He states that the influenza bacillus grown from the cerebro-spinal fluid showed longish filaments in culture and that Pfeiffer himself identified the cultures as *B. influenzæ*, nevertheless 0·5 c.cm. of cerebro-spinal fluid killed a guinea-pig in half an hour after intravenous injection, and a two-day-old broth culture killed a guinea-pig in three days. After the diagnosis was made the *B. influenzæ* was found in all parts of the body, including the blood.

The work of recent observers (Blake and Cecil,[11] Parker,[12] Huntoon and Hannum,[13] McIntosh [14]) has shown that whereas cultures from solid media, even in massive doses, may be non-pathogenic, liquid cultures are often markedly pathogenic for rabbits, mice, guinea-pigs, and monkeys, and that even the filtrates of such cultures may be highly toxic. With this toxin, too, an antitoxic and agglutinating serum may be prepared from rabbits. Cohen has attempted to differentiate the meningitis strains from the true influenzal strains of the bacillus by agglutination and protection experiments. Other observers, however (Maitland and Cameron [4] (1921), Bell [15] (1920), Valentine and Cooper [16] (1919), Povitzky and Denny [17] (1921), Coca and Kelly [18] (1921), Yabe [19] (1921)), have been unable to group strains of *B. influenzæ* either morphologically or serologically—the morphological variations are very marked and do not appear to correspond to variations in agglutination, and serologically most strains appear to be distinct when tested by agglutination and absorption methods.

From the evidence available it would appear justifiable to conclude that the strains of *B. influenzæ* which have been isolated from the lesions in influenza (pneumonia, bronchitis, rhinitis) and its complications, meningitis, arthritis, &c., and from healthy carriers, all form one group of organisms which may show marked differences in morphology, in their pathogenicity for animals, and in their agglutination and absorption reactions.

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(*Continued at foot of next page.*)

REPORT ON TWO CASES OF DIRECT INJECTION INTO THE HEART FOR ARREST OF HEART BEAT DURING ANÆSTHESIA.[1]

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Fifty years ago, Schiff, a German physiologist, found that the heart could sometimes be started again after it had stopped beating; other physiologists confirmed his observations. It was, however, some years before surgeons applied Schiff's method to human beings and were able to recall to life some of their patients, apparently dead on the operating table. Of recent years massage of the heart has been displaced by direct injection. The following are two cases in which the heart stopped beating but was set going again by means of the direct injection of adrenalin.

Case 1.—The patient was a man, aged 30, who had had pulmonary and intestinal tuberculosis for seven months. During this time his weight had sunk from 168 to 102 lb. At the time of operation there were signs of active disease in both lungs, but especially in the left, where there was believed to be a cavity.

On Jan. 27th, 1924, he was given nitrous oxide and oxygen with McKesson's apparatus. The administration was begun at 10.20 A.M. Dr. Archibald, assisted by Dr. Scrimger, opened the abdomen, and proceeded with a short-circuiting operation. The anæsthetic was given for an hour and fifty minutes, during which time the breathing became shallow and stopped temporarily two or three times, the colour becoming rather dark. Each time the nitrous oxide was turned off and pure oxygen given under moderate pressure. On each occasion breathing was resumed spontaneously, the colour quickly becoming pink. At 11.30 the pulse dropped to 90, and was markedly irregular. Ten minutes later the irregularity had disappeared and the rate risen to 130. As the operation proceeded the patient's colour became somewhat paler. At 12.10 P.M., just after the completion of the bowel anastomosis, breathing stopped, the colour became very pale, and the pulse could no longer be felt. Pure oxygen was turned on and used to inflate the lungs rhythmically under moderate pressure. After a pause a deep spontaneous inspiration was taken, and after another considerable pause this was repeated. The oxygen was continued, and artificial respiration performed by rhythmical compression of the lower thorax. About three minutes after breathing had stopped Dr. Archibald introduced his hand into the abdominal cavity for the purpose of massaging the heart. It was then felt through the diaphragm as a flaccid bag, obviously paralysed in diastole. The ventricles were rhythmically compressed, the left hand exerting counter pressure outside the chest wall. Only the lower half or two-thirds of the ventricle could be grasped. After about two minutes' massage without response a syringe for direct injection was called for. By this time the appearance was that of death, the pupils being widely dilated. Probably another minute elapsed before the syringe was produced. Dr. Scrimger then injected 1 c.cm. of a 1 in 1000 solution of adrenalin in the region of the heart. As no response could be felt by the hand in contact with the heart it seemed doubtful to Dr. Archibald if the needle had been pushed into the heart muscle. Consequently another dose of ½ c.cm. of a 1 in 1000 solution was injected about a minute later, but without result. After another minute Dr. Scrimger inserted the needle again. This time Dr. Archibald felt that it had passed through the middle of the ventricles into the pericardium beyond. The needle was then partly withdrawn and 7 minims of pure adrenalin solution injected into the heart. After about ten seconds pulsation was felt, at first weak but rapidly growing stronger, until within a minute the ventricle was beating with considerable force, and becoming steadily more rapid. The whole time during which the heart had been stopped must have been nine or ten minutes. The rate was now between 80 and 90 and the contractions very strong. The pulse could be felt in the wrist and temporal arteries, and the colour had returned to the face and lips. Artificial respiration was continued for several minutes before the patient took a spontaneous breath. The breathing was at first shallow, with considerable intervals, but soon became regular and deep. The lungs were now found to be full of coarse râles, and the breathing sounded, to the bystanders, as if there were a good deal of fluid being churned up in the larger air-passages. It was concluded that œdema of the lungs from the temporary stopping of the circulation had developed. Dr. Archibald percussed the chest, and noting the obliteration of the heart dullness suggested the presence of pneumothorax.

The patient was returned to his room. The head was kept low and the administration of oxygen continued. His systolic blood pressure was 120. He was quite unconscious and rather restless, showing a tendency to throw his arms about and move his head quickly from side to side.

Dr. Moffat now examined his chest and diagnosed pneumothorax. A needle was therefore introduced and the air slowly aspirated. This had to be repeated frequently as the air seemed to collect rapidly and cause respiratory difficulty. In spite of the use of oxygen and cardiac stimulants the patient died without regaining consciousness at 5.30, 5 hours and 20 minutes after his heart had first stopped beating. Permission was obtained to remove the lungs for examination. It was impossible to find the place where the air had gained access to the pleural cavity. It was probably at the apex where the surface of the lung was torn by the breaking down of adhesions during removal. There was no sign of injury to the lung by the needle used for the injection.

Case 2.—This patient was a man aged 71, who had ha his prostate removed by Dr. D. Mackenzie on Jan. 5th. He lost a good deal of blood at the operation, and his convalescence was slow and unsatisfactory. On Feb. 29th during a cystoscopic examination, he was attacked b severe pain in the abdomen, accompanied by weakness an faintness. The pain continued, and the next morning h was feverish, and vomited. Enemas were ineffectual. Th abdomen was distended and rigid. A diagnosis of peri tonitis was made and he was taken to the operating room His general condition was very grave. At 11.20 on March 1s he was given nitrous oxide and oxygen by means of McKesson apparatus. The peritonitis was found to b due to a leak at the base of the bladder. The bladder wa drained, and cæcostomy performed to relieve the distensio of the bowels. At about 11.45 the patient's colour suddenl changed, he became very pale, and the pulse disappeare from the temporal artery and wrist. Breathing, after very short interval, stopped too. The nitrous oxide wa at once turned off and pure oxygen given with rhythmica pressure. At the same time artificial respiration by com pression of the lower chest was commenced. The lips ha become white and no heart's impulse could be felt. Som adrenalin solution (½ c.cm. of 1 in 1000) was therefor injected into the heart through the fifth intercostal spac The result was almost dramatic. The heart's impulse an the pulse at once returned, the colour improved, and withi a short space of time spontaneous breathing began, at firs at intervals of about 10 seconds, but soon becoming fast and regular. Probably the time during which the pul disappeared was not more than two minutes. After breathi had become re-established the sounds were noticeabl moist as if there were abundant froth in the air-passage To check this secretion he was given atropine, gr. 1/15 hypodermically. On his return to his room his pul showed signs of failing again, and he was given adrenali (1 in 1000 solution) hypodermically with considerab

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[1] Read at the Annual Meeting of the Canadian Society of Anæsthetists, Ottawa, June 17th–20th, 1924.

(*Continued from preceding page.*)

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benefit. He did not regain consciousness until 6 o'clock in the evening. Afterwards his convalescence was slow but continuous.

Commentary.

In this, unlike the first case, the heart was not felt through the diaphragm, but the reasons for believing it had stopped were equally strong. There was the cessation of pulse, apex beat, and respiration, the appearance of the patient's face, the fact that when the needle was pushed into the heart no movement was felt, the prompt appearance of œdema of the lung when the heart recovered, and the protracted interval before the return of consciousness. In such emergencies it is very difficult to estimate time exactly, but the duration of the intervals between the various events was noted immediately—in consultation with Drs. Archibald and Scrimger in the first case, and with Dr. Scrimger in the second.

One of the most noticeable features in such cases is the length of time the nervous system takes to recover as compared with the heart. There is always a long period of unconsciousness afterwards. This is well shown in a case reported by W. M. Mollison.[2]

A boy of 6 was given a mixture of chloroform and ether for the operation of removing tonsils and adenoids. Just as it had been completed pulse and respiration stopped. By means of direct injection of pituitrin into the heart and massage through an opening in the abdominal wall, the heart was started again after 13 minutes. The patient was unconscious for seven days. For ten days he had choreic movements and symptoms of brain irritation. He eventually recovered.

Another interesting feature is the prompt appearance of œdema of the lung, apparently due to the arrest of circulation. In looking over the records of such cases in the literature of the last few years one finds the condition of the lung mentioned very rarely. Prus noticed it in his experiments on dogs, two out of 12 dying from this cause during the first hour after revival.

The chief lesson to be learned is the necessity for immediate injection of adrenalin into the heart. When breathing stops during anæsthesia the first thing is to ascertain the condition of the heart, for no amount of artificial respiration will oxygenate blood which is not circulating. Time spent in giving hypodermic injections, hot applications, &c., is merely compromising the chances of recovery. The actual injection is apparently harmless. Many post-mortems have been done on patients in whom cardiac injections have been given, but in none has damage to the heart been recorded, whereas damage to the heart muscle which was inconsistent with life has been revealed at post-mortems after cardiac massage. The needle should be inserted into the fourth intercostal space at the upper edge of the fifth rib, close to the sternal border, or else one finger's breadth inside the left border of relative heart dullness. By the first route, the right, and by the second, the left ventricle is reached. By either the internal mammary artery is avoided. The needle is known to be in one of the cavities of the heart by the escape of blood when the stylet is withdrawn. If the heart is much distended with blood it may be of advantage to let some escape. It would seem most rational to make the injection into the heart muscle itself. One French writer advises injection into the cavity of the heart, believing that absorption through the lymphatics of the endocardium can take place in time.[3] The injection can be conveniently made by means of a spinal puncture needle. Other substances than adrenalin have been used, but none have proved so satisfactory. The best method of artificial respiration is by means of the intra-tracheal insufflation of air. Sylvester's method has the drawback of hampering the heart by means of pressure on the lower thorax.

My thanks are due to Dr. Archibald and to Dr. Scrimger for permission to report these cases and for the help they gave me in recollecting the course of events.

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INFECTIVE ENDOCARDITIS IN CONGENITAL HEART DISEASE

INVOLVING THE PULMONARY ARTERY.

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THE occurrence of infective endocarditis in congenitally malformed hearts, although emphasised in text-books of medicine, is nevertheless infrequently met with in hospital practice. The association is interesting, first because it is rare, and second because it throws light on the origin of infective endocarditis in general.

The recent investigations of Lewis and Grant[1] have demonstrated the importance of congenital defects of the aortic valves in the causation of subacute bacterial endocarditis; and we propose here to consider the relationship of the more common congenital malformations to infective endocarditis involving the pulmonary artery. Endocarditis, simple or vegetative, is less common at the pulmonary valves than in any other situation, pulmonary incompetence being the rarest valvular lesion. Statistics based on post-mortem findings published by Osler (209 cases),[2] Horder (118),[3] Washbourn (100),[4] Cowan and Ritchie (70),[5] Glynn (47),[6] Abrahams (39),[7] Libman (19),[8] comprising 602 cases of infective endocarditis, show involvement of the pulmonary valves in 30 cases only, an incidence of 5 per cent. From an analysis of 198 consecutive cases of infective endocarditis from the post-mortem records of the Middlesex Hospital, we found the pulmonary valves affected in nine instances, or 4·5 per cent. Three of the nine cases had congenitally deformed hearts.

Apart from congenital malformations, the pulmonary valves are most frequently affected in gonococcal endocarditis, and in puerperal and traumatic septicæmias. Rheumatic endocarditis of the pulmonary valves is almost unknown, and therefore one is able to consider the development of the infective process in this situation, as it were, in virgin soil.

With regard to the relative frequency of the various malformations associated with pulmonary infective endocarditis, Newton Pitt[9] found among 21 collected cases: (1) patency of the ductus arteriosus in three cases; (2) defects of the interventricular septum in ten cases; and (3) pulmonary stenosis in eight cases. We have found descriptions of 36 cases in the literature; patent ductus arteriosus was present in 13 cases, patent interventricular septum in 12, pulmonary stenosis in 7, patent auricular septum in 6, defects of the pulmonary valves in 2, and stenosis of the conus arteriosus in 2.

1. *Patent Ductus Arteriosus.*

According to Libman this is the most important defect connected with infective endocarditis. The following interesting case has recently occurred which was under our observation for over two years, and in which an autopsy was performed.

A male of 29 years was admitted to the Middlesex Hospital under the care of Dr. C. E. Lakin in June, 1921, complaining of pain in the legs and of feeling unwell. According to his mother he had had "rheumatism in childhood," and diphtheria at 7 years of age. He had always been delicate and "suffered with his heart," and had never been able to do ordinary work. He was of average physical development, but mentally backward. There was no cyanosis and no clubbing of the fingers or toes, but the complexion was highly coloured. Physical examination revealed a greatly enlarged heart with some bulging of the præcordium, and a diffuse pulsation most marked in the second left interspace. A pronounced thrill with maximum intensity over the pulmonary area was palpable throughout the cardiac cycle. On auscultation a very loud harsh bruit was heard over the præcordium and at the back of the chest, most marked in the second left interspace near the sternum; the bruit continued throughout systole and diastole with systolic intensification. In addition a loud " bang " was audible over the pulmonary area during systole. X ray examination showed the heart to be considerably enlarged to the right, as well as to the left. The aorta was dilated, but there was no evidence of aneurysm. The electrocardiogram showed great increase in amplitude of the ventricular deflections, with an inverted T wave in lead 1, but no other abnormality. The systolic blood pressure was 200 mm. Hg, and the diastolic 90. The blood picture showed a polycythæmia of 8,375,000 red cells per c.mm., with a colour index of 0·58. The Wassermann reaction was negative. The patient had slight irregular fever for the first three weeks only, and he was discharged after two months, considerably improved in general condition. A tentative diagnosis was made of patent ductus arteriosus with superadded endocarditis.

He was readmitted in June, 1923, after being under observation in the out-patient department periodically. His general condition had deteriorated, and symptoms of cardiac failure were now present. There was œdema of both legs and moderate enlargement of the liver. The spleen was palpable. On examination of the heart much the same physical signs were found, the lungs, however, showing bubbling râles and rhonchi all over the chest. The temperature ranged from 99° to 102° F.; the pulse from 100 to 120 per minute, and the respirations were increased to 40 per minute. The blood examination now showed marked anæmia, the red cells being 2,700,000 per c.mm., and the leucocytes 9700. No tubercle bacilli were present in the sputum. The patient's condition did not improve under treatment and he died one month after admission.

Post-mortem Examination.—The heart was greatly enlarged and both ventricles were hypertrophied, the left ventricular muscle being 9/10 of an inch thick, and the right 4/10. A massive warty vegetation, measuring $1\frac{3}{4}$ by 1 inch, was found completely filling the lumen of the pulmonary artery, extending from the valves to slightly beyond the bifurcation, and firmly adherent to the anterior wall of the vessel. The ductus arteriosus was patent, measuring 3/5 inch (1·5 cm.) in length, its lumen being partly filled with small warty vegetations which protruded from the aortic orifice of the canal. Two small calcified areas were present in the wall of the aorta; one just below the ductus opening, the other on the convexity of the aorta directly opposite the ductus opening. On passing a probe along the canal from the aortic aspect, it was found to be buried in the mass of vegetations in the pulmonary artery previously described. The pulmonary cusps were the seat of extensive vegetations, growing mainly from the ventricular surfaces. Between the right anterior and posterior cusps was a mass 1 inch long extending upwards into the pulmonary artery and downwards into the ventricle, causing great distortion of the posterior cusp. The aortic cusps were covered on their ventricular surfaces with luxuriant vegetations; in addition, both the mitral and tricuspid valves showed small recent deposits, situated mostly on their auricular surfaces. The lungs showed brown induration and great œdema, but no infarction. The liver weighed 40 oz., and on section many small inflammatory areas were seen, which microscopically proved to be foci of round-celled infiltration around branches of the hepatic artery. Sections of the kidneys revealed a mild degree of embolic glomerular nephritis.

The above case is a good example of subacute bacterial endocarditis engrafted on a congenital lesion. The infective process appears to have commenced at the pulmonary end of the ductus arteriosus and to have spread along the wall of the pulmonary artery, finally involving the valves.[*]

Hamilton and Abbott[10] have described a similar case, and have collected ten others from the literature. In their own case a large oval mass of vegetations was present on the wall of the pulmonary artery, but the valves had escaped. From a careful histological study they conclude that the process originated in the pulmonary end of the ductus as a result of invasion of the intima at the point of maximum strain, and not as an embolic infection via the vasa vasorum. Of their 11 cases the wall of the pulmonary artery was involved in all, the wall of the ductus in nine, the wall of the aorta in seven, while the pulmonary valves were affected in two cases only. In a similar case described by Horder[3] the aortic valves were diseased, in addition to the mass of vegetations on the wall of the pulmonary artery which started at the ductus but did not extend to the pulmonary valves.

The fact that the pulmonary valves so frequently escape make it quite clear that the process originates in the artery wall, most probably at the site of the ductus. This extensive endarteritis would appear to be peculiar to the pulmonary artery. In this connexion the case described by Weber and Fürth,[11] of a man, aged 27, who had had gonorrhœa, is of interest, in that the process occurred without there being a congenital defect or valvular lesion. In several of the above cases the artery was involved as far as the medium-sized branches, and in four case mycotic aneurysms were also present.

2. *Defects of the Inter-Ventricular Septum.*

The post-mortem records of the Middlesex Hospital since 1860 contain seven cases of infective endocarditis in which this lesion was present. In one case a congenital aperture in the undefended spot was the seat of a mass of vegetations which projected into the right ventricle and involved the septal cusp of the tricuspid valve. In another case stenosis of the conus arteriosus was also present, the constricted portion being surrounded with fibrinous vegetations. In a third case the stenosed orifice of an aberrant pulmonary artery was fringed with vegetations, while the valves were healthy. Yet another case of especial interest was one described by Dr. Thompson in 1877, in which two perforations of the ventricular septum at the site of an aneurysmal bulging were fringed with vegetations, which had spread into the conus arteriosus and involved the pulmonary valves, causing incompetence. These perforations were considered as acquired, but from their situation in the membranous part of the septum it seems possible that a congenital defect was originally present. Five saccular aneurysms occurred on branches of the pulmonary artery. The specimen is preserved in the museum of the Middlesex Hospital.

In the cases reported in the literature, vegetations were commonly found around the margin of the aperture, spreading to the ventricles, either contiguously or forming deposits on the wall opposite. The pulmonary, and frequently the aortic, cusps were also involved. Where one side of the heart alone is affected, paradoxical embolism may occur.

3. *Pulmonary Stenosis.*

In our analysis of 198 cases of infective endocarditis there is no instance of its occurrence in this congenital lesion. This relative infrequence is probably due to the fact that pulmonary stenosis has a more serious prognosis than the other two lesions we have discussed; and therefore subjects are less likely to reach the age at which infective endocarditis is most common. . Dickinson[12] described an interesting case of its occurrence in a male of $4\frac{1}{2}$ years, in which thrombosis of the pulmonary artery resulted.

Considerations.

There is as yet, we feel, no wholly satisfactory explanation of the fact that infective endocarditis of the left side of the heart is far more common than that of the right. The study of the inception of the infective process is simplified by considering it as it occurs in congenital lesions, more especially of the pulmonary valves, for thus can rheumatic damage be excluded.

The common lesions—namely, defects of the septa and patency of the ductus arteriosus—might predispose to infection of the pulmonary valves in the following ways:—

1. The rise of blood pressure produced in the lesser circulation exposes the pulmonary valvular apparatus to increased strain. That this does occur is certain, as evidenced by the enlargement of the right ventricle and dilatation of the pulmonary artery so often present. In cases of patent ductus arteriosus Abbott[13] has found atheromatous changes in the pulmonary

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[*] The case, and subsequently the specimen, were shown by Dr. C. E. Lakin at the Medical Society of London. (Med. Soc. Trans., vol. xlv., p. 29.)

artery, and even aneurysm of this vessel has been described (Durno and Brown).[14] There is, however, little reason to suppose that this increased pressure is a factor in the predisposition to infective endocarditis. In other conditions, where a high pulmonary pressure occurs, there is no special liability to infective lesions. Stokes[15] observed that in cases of atheroma and dilatation of the pulmonary artery, secondary to emphysema, the valves were usually unaffected. Again, in the cases of atheroma and dilatation of the pulmonary artery described by Rogers[16] as occurring in India, and which he attributes to syphilis, the valves were normal. Furthermore, in the parallel instance of the aortic valves in cases of hyperpiesis with raised systemic pressure, infective endocarditis is unusual.

2. The thickened endocardium usually present at the site of congenital apertures forms a suitable soil for bacterial invasion. Horder considers this factor of prime importance, and points out that in the case of septal defects vegetations occur round the margins of the aperture and on the wall of the ventricle at the point upon which the stream of blood impinges. Local thickenings of the intima occur opposite the opening of a patent ductus arteriosus, both in the aorta and in the pulmonary artery, but it appears probable that the infective process begins at the pulmonary orifice of the ductus rather than at these thickened areas which in our case bore no vegetations.

3. Admixture of venous and arterial blood. The frequency of left-sided endocarditis and the immunity of the right side to infection has been attributed to the fact that arterial blood is the more favourable medium for bacterial growth. It is certainly true that dextral endocarditis is more common in those congenital lesions which allow arterial blood to reach the right side of the heart.

Summary.

It is evident that local thickening of the endocardium and increased local strain are factors in determining the onset of the infective process in congenital heart disease, but we suggest that the access of arterial blood to the right heart may explain the unusual frequence of dextral endocarditis in these cases.

In our opinion the preponderance of left-sided lesions in endocarditis in general cannot be adequately explained by the higher blood pressure in the systemic circulation, and we are impressed with the possibility that it may be due to the changed composition of the blood after passing through the lungs.

We are indebted to Dr. C. E. Lakin for his kindness in allowing us to publish the details of the case formerly under his care.

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UNIVERSITY COLLEGE HOSPITAL MEDICAL SOCIETY. The opening meeting of this society, at which Prof. J. S. Haldane, Oxford, is to read a paper on the Physiology of Acclimatisation to High Altitudes, has been postponed from Friday, Oct. 17th, till the following Wednesday, Oct. 22nd, at 8.15 P.M.

A PLEA FOR THE PRESERVATION OF THE PREMAXILLARY BONES IN CONGENITAL CLEFT PALATE.

BY ALBERT D. DAVIS, B.Sc., M.D. NEB., D.D.S.

(From the Department of Oral Surgery, University of Nebraska, College of Medicine.)

IT has been my good fortune to assist a noted oral surgeon in the compilation of data from all parts of the world on cleft palate and cleft lip. In going over the literature thus assembled, it seems to me that there is probably no other field of surgery in which there is such a variance of opinion as to the best time for operation, the objective aimed at, the technique to be employed, and the final results of operation. Most authors in this field seem to agree that the clefts of the lip should be closed, and some agree that clefts of the palate should be closed too. Others seem to be satisfied to approximate the hemispheres of the hard palate without effecting union. The more individual the operation and the easier its performance, the greater the tendency becomes to forget the primary objective where deformity exists—the restoration of normality as far as possible.

Brophy[1] gives the following current definition of cleft palate: "A congenital deformity, characterised by a fissure or fissures of the palate due to arrested development." In other words, congenital cleft palate is considered to be the result of incomplete development of the tissues necessary to enter into its normal formation. "The opinions of authors thus expressed," Brophy goes on to say, "have been based, no doubt, on their observation of the open space between the oral and nasal cavities. The error is easily explained, for the open space suggests an absence of tissue. But the deformity, the statements of many authors to the contrary notwithstanding, is *not* the result of *congenital deficiencies* of the parts in question, nor is it due to *arrested growth of the palate. All children who have congenital cleft palate, with rare exceptions, have in the palate at birth* the normal amount of tissue. The palatine plates, however, are frequently misplaced upwards, and the bones are not united in the middle line. The palate is *cleft*. Later in life it may atrophy for want of use. Therefore, a cleft palate is a fissure, a separation of well-developed parts, not (with rare exceptions) the result of arrested development nor failure of a normal quantity of tissue to enter into its structure." Most authors are now agreed that this is so, and, with this fact before us, it seems that the only logical course to pursue would be to preserve, as far as possible, all of this normal amount of tissue, assemble it into correct relationship, freshen its edges, unite and immobilise it until healing occurs. Nevertheless, some surgeons who agree with and support the definition itself do not follow this logical course. Either the definition is forgotten in the subsequent operative procedure advised, or it is totally disregarded.

There are many minor offences, but my object is to condemn the practice advised by certain authors relative to the disposition of the premaxillary bones in the more severe forms of cleft palate. In these cases the premaxillary bones are usually protruded for some distance anterior to the maxillæ, making a very ugly deformity. (Figs. 1 and 2.) Although these bones are protruded, and have the prolabium or central portion of the lip attached to them in front, it must be remembered that they form a part of the normal ununited tissue spoken of in the definition. Yet we find repeated instances in the literature where the author recommends that these bones be excised and the lip closed, in the expectation that the maxillæ will be moved more nearly together.

To anyone who has a well-grounded education in this special field of surgery, the excision of the pre maxillary bones in order to bring the lip over the maxillary bones is to be thought of in the same light as would be the amputation of a limb to heal a slight flesh wound. And yet, let me quote from a book published in 1919: "In severe cases the premaxillæ should be removed entirely, as the maxillæ then fall together and render the subsequent closure of the palatal cleft (which is usually present in these cases) an easier affair. The falling in of the lip which results from this course can be obviated by suitably designing the denture which carries the incisor teeth." The same authors advise "gouging out the teeth in the premaxillæ" if an attempt is made at its reposition and it does not fit well. They also state that "firm union of the bone rarely occurs."[2]

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[1] T. W. Brophy: Oral Surgery.

FIG. 1.

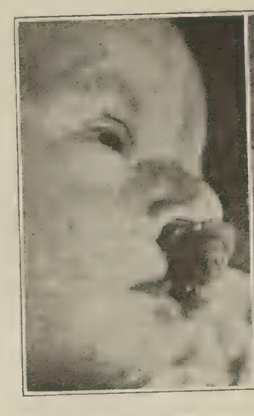


FIG. 2.

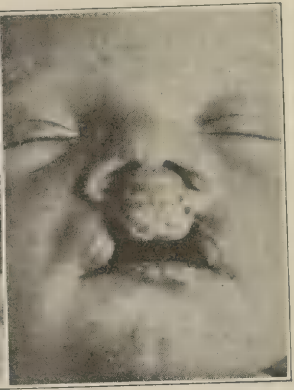


FIG. 1.—Tripartite cleft palate, showing protrusion of the premaxillary bones.

FIG. 2.—Front view of child with premaxillary bones protruded. Notice rounded elevations showing tooth buds in position.

An American author, an oral surgeon in one of the large eastern hospitals, says in his text-book: "In some cases of cleft palate, where the intermaxillary bone is turned up and attached to the septum of the nose in front, it is necessary to remove it altogether. In this case, the incisor teeth, both temporary and permanent, will be lost, as their germs are contained in these intermaxillary bones."[3] In Spain a book by Gaillard y Nogue, "Tratado de Estomalogia," shows in Figs. 150 to 152 inclusive, the treatment of double hare-lip. The premaxillæ have been removed, and during the closure of the lip the greater part of the prolabium is cut away, leaving an irreparable deformity.

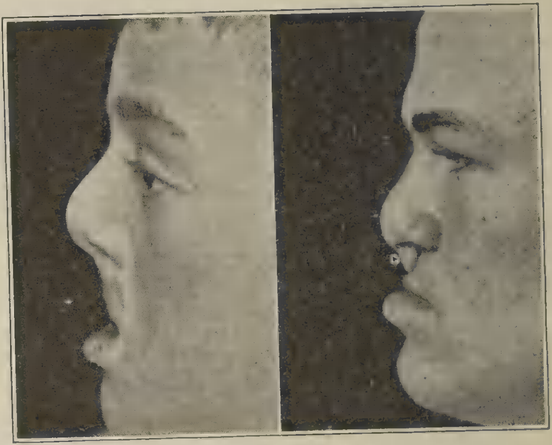
When a patient is brought with a congenital cleft palate, complicated with premaxillary protrusion and double cleft lip, it is the duty of the surgeon to correct the deformity, not to leave the parts beyond the stage of correction. In the days of Celsus, 42 B.C. to A.D. 37, the lip was closed over the deformity, no attention being given to the palate, so far as history records. Some surgeons of the present day have gone a few steps farther and trim away a section of the vomer, which allows the premaxillæ to be pushed backward and, without anchorage, freshened edges or immobilisation of these bones, suture the lip together, depending upon the traction of the orbicularis oris muscle to hold the bones in place until Nature heals the wound. A bony union cannot occur, and the bony cleft is only modified in extent—not closed. In cases of single clefts, the operation as originally designed by Celsus almost 2000 years ago is to-day advocated by many, with this exception, that they advise the closure of the cleft in the soft tissues at a later date, leaving the bones ununited.

When operations of this type are advised and taught to students by men of high standing in the profession, a plea for further enlightenment is necessary. Every obstetrician should be informed of the necessity of the proper procedure for these unfortunate children and should advise the parents to consult a specialist in this field.

When, as Brophy has stated,[1] there are innumerable failures due to improper operative procedures, it is time some definite stand should be taken to correct these appalling disasters. It is obvious to anyone truly informed in this work that, inasmuch as the premaxillary bones are a part of the normal arch and lip, their preservation should be of paramount importance. In constructing a normal lip a normal bony arch is essential. The premaxillæ, in these cases, form the most important part of the arch, as normal facial contour and expression are impossible without them. Not only is this true, but the premaxillæ contain tooth buds of usually two to four teeth which are important for the patient's future dentition.

The objective of the surgeon in these cases should be the correction of the deformity, and the restoration to normal as nearly as possible of all the displaced tissues. Ease in the accomplishment of succeeding operations and the virtues of artificial dentures are insufficient reasons for the excision of the premaxillæ. Lack of knowledge of their value to the patient and to the operator's ultimate success, in the light of surgery of the present day, is totally inexcusable. Upon the preservation of these protruding bones—unsightly as they appear, attached to the lower part of the nose like some neoplastic tissue—depends the formation of not only a normal bony arch, containing the teeth, but a normal lip and nose as well. If normality and correction of the deformity *are* the goal of the surgeon, excision of the premaxillæ renders this achievement impossible not only to himself but to any surgeon who may, unfortunately, follow him. (Figs. 3 and 4.)

FIG. 3. FIG. 4.



The results of excision of the premaxillary bones in infancy. After this mutilation normality can never be established.

Brophy[1] teaches that a bony cleft should be considered and treated as an ununited fracture. This is not a new procedure, but has been the foundation of his work for over 40 years. Fracture surgery teaches freshened edges, fixation, and immobilisation. If the surgeon will only visualise the cases of cleft palate with premaxillary protrusion as potential fracture cases with displacement and so treat them, then, and then only, will normality be established and the practice of excision of the premaxillæ be abolished.

Surgical authors who advocate the sacrifice of these important parts fail to comprehend the conditions of an ununited fracture and the treatment essential to its cure. Every properly educated and experienced surgeon knows that an ununited fracture cannot be cured without first exposing the fractured ends of the bone, denuding them of intervening soft parts, including the cicatricial and periosteal tissue, placing bleeding cancellated bone into contact with bleeding cancellated bone, correctly adjusting and immobilising them, and closing the soft parts over them so that perfect union and solidification will occur. Then the premaxillæ will be in their correct position and normality established. (Figs. 5 to 8.)

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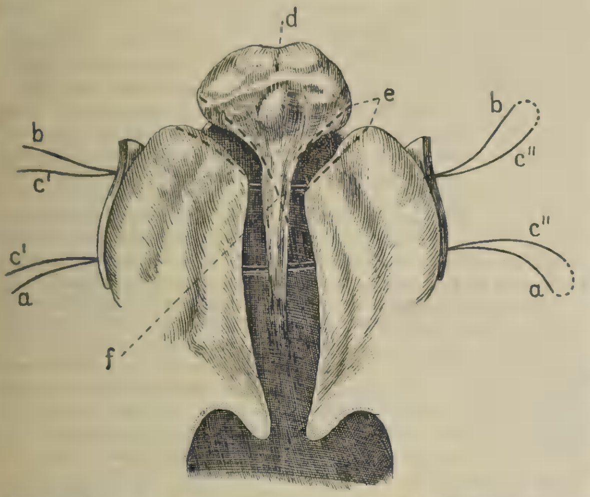
[2] Mills and Humphery: Text-Book of Surgery for Dental Students: Congenital Malformations of the Face.

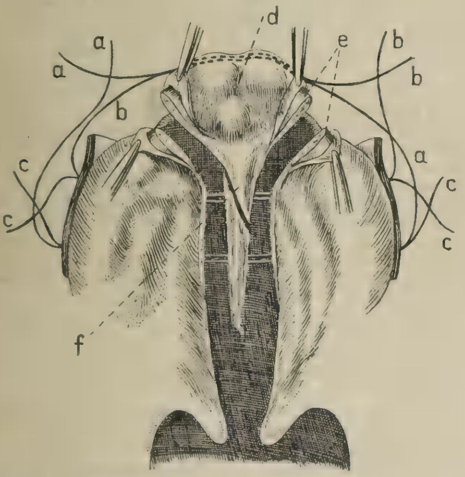
[3] Robert H. Ivy: Applied Anatomy and Oral Surgery.

FIG. 5.



Method of treating tripartite cleft palate. The wires have been introduced and the lead plates adjusted. The dotted lines indicate the incisions. It will be noticed that the vomer is cut obliquely so as to allow it to be moved backward into proper position. The wires, &c., are lettered in order that they may be identified in the subsequent figures. (Figs. 5–8 have been redrawn from Brophy.)

FIG. 6.



The second step in the procedure showing the flaps made in the muco-periosteum and the compact bone removed from the surfaces to be placed in contact. It will be noticed that wire sutures have been carried through the maxillæ and the vomer. These sutures will enable the surgeon to bring the bones into close proximity.

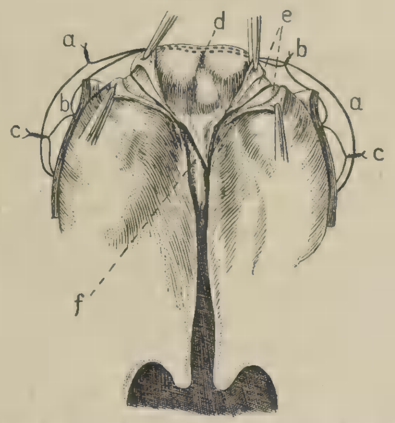
Conclusions.

1. The premaxillæ, even when protruded, are not abnormal nor excess tissue, but are normal tissue misplaced.

2. The function of the premaxillæ is to complete the normal, bony upper arch, support the lip and lower part of the nose, and give symmetry and normality to the face.

3. The author who recommends the excision of the premaxillæ must share equally with the surgeon who follows his method the blame for the permanent mutilation of the child.

FIG. 7.



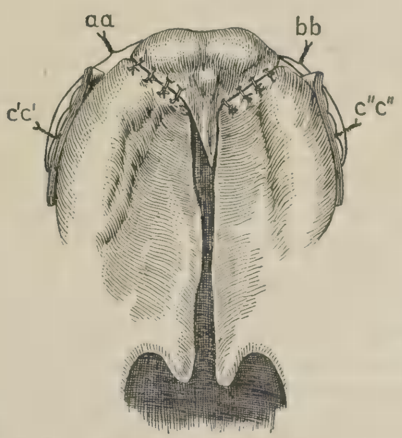
The flaps have been made in the membranes and the vomer is in correct position. The wires have been partially twisted. It will be noticed that the wire *a* is brought forward and passed beneath the muco-periosteum anterior to the premaxillary bones and twisted upon the right side. The wire *b* is carried forwards in the same manner and twisted upon the left side. The wire *c* is twisted against the lead plate so as to force the separated bones together. The *c* wires are twisted before the *a* and *b* wires.

4. Cases of cleft palate with premaxillary protrusion must be visualised as cases of potential fracture with displacement and modern methods of bone surgery employed to restore normality.

5. Excision of the premaxillæ destroys all hope for normality and produces permanent mutilation.

6. The obstetrician should be fully awake to the importance of consulting specialists in this field.

FIG. 8.



The premaxillary bones have been placed in their normal position and the flaps sutured with horse-hair. The mucous membrane over the vomer and edges of the hard palate have been split and the underlying bone freshened so that union takes place without placing any sutures in the median line. The soft palate is united later.

7. Ease in the accomplishment of succeeding operations and the virtues of artificial dentures are insufficient excuses for the excision of the premaxillæ.

8. Preservation of the premaxillæ, assembling the bones in their proper relationship, and immobilising them until union occurs are necessary if normality is ever to be obtained.

Clinical and Laboratory Notes.

A CASE OF IRON-STONE PHTHISIS.

By Sir Kenneth Goadby, K.B.E., M.R.C.S. Eng., D.P.H. Camb.,

MEDICAL REFEREE FOR INDUSTRIAL POISONING.

The following case of phthisis in an iron-stone worker is of interest in its bearing on the action of dust as a lung irritant predisposing to secondary tuberculous infection.

A. B., iron-stone miner employed in winning hepatite iron ore. He was engaged in the use of compressed air apparatus, by means of which holes are driven into the rock for the insertion of blasting material.

He joined an approved society in July, 1912, with no history of disease. In May, 1918, he was certified as suffering from influenza; recovered at the end of 20 days. On Dec. 13th, 1923, he was treated for chest complaint, became progressively worse, and died on Feb. 17th, 1924.

Radiographic Examination.—In May, 1919, he was examined radiographically along with 11 other cases of iron-stone miners by Mr. C. Thurstan Holland, who reported:—

"Screen examination: Diaphragm moved equally and well both sides; no definite abnormality detected. Has worked for three years on a drilling machine. Radiographic plate: Linear shadowing along the bronchi is exaggerated; there are numerous rather large, opaque spots present, especially well-marked along the linear shadows extending from the right root of the lung. Smaller spots are evident along the same lines in the left lung."

Death Certificate.—"Death from pulmonary tuberculosis 1½ months in duration, verified by post mortem."

Lung Examination.—The right lung only was sent for examination. When placed in water the upper lobe sank, but the middle and lower lobes floated. The upper lobe showed numerous large, white, bulging areas; was generally consolidated and hard to the touch. There were numerous old adhesions and evidence of recent and old pleurisy. There had evidently been some cardiac adhesions in addition. On incising one of the white swellings a large amount of brown, thick, purulent material escaped. Films made from the pus showed numbers of tubercle bacilli, pus cells, polymorphonuclear and mononuclear cells on staining by Giemsa. Gram stain showed large numbers of diplococci, Gram-positive, many capsulated. Another portion of the lung was excised under aseptic precautions and cultivations made therefrom. Pneumococci were isolated. Portions of the upper and lower lobe were examined histologically, stained, (1) hematoxylin eosin, (2) Van Gieson, (3) Gram-Weigert, (4) potassium ferrocyanide.

Microscopical Examinations of the Sections showed a generalised consolidation, complete blocking of the majority of the bronchioles; the alveolar tissues almost entirely replaced by fibrous tissue. A large amount of dust is situated in the immediate vicinity of the blocked bronchi and throughout the consolidated tissue. The arrangement of the fibrous tissue is loose, and does not show the same nodular formation that is present in cases of advanced silicosis, the fibrosis being of a more generalised and irregular type. The specimens stained with potassium ferrocyanide, both in macroscopic and microscopic sections, showed a large amount of diffuse blue staining. In the macroscopic specimen the blue staining follows the lines of new fibrous tissue formation, in some cases being parallel to the smaller bronchioles, showing that the iron had diffused into the tissues. The microscopic sections showed intense iron staining, particularly around the occluded bronchioles, but also diffusely through the fibrous tissue. With the polariscope a certain number of brightly refracting crystalline bodies were found scattered about in the fibrous tissue, but on comparison with a case of silicosis these refractile bodies are much smaller in number. On the other hand, even a normal lung will show a few of these bodies.

Considerable interest attaches to this case. (1) The development of phthisis appears to have been predisposed to by the irritative condition of the lung; (2) the dust inhaled was largely a compound of iron, but the analysis of dust from the mine gives the presence of small quantities of quartz.

In silicosis of the lung occurring in ganister workers and gold miners there is no question that the inhaled silica particles act as an irritant, setting up chronic fibrotic changes, the tissue being secondarily infected with the tubercle bacillus giving rise to phthisis. At one time the angularity of the particles breathed was supposed to determine the fibrous tissue production, but latterly, from the researches of Gye and Kettle[1] and Kettle,[2] it seems probable that the silica undergoes solution and acts as a tissue poison. Haldane[3] considers that the irritative action of inhaled dusts depends on their solubility, or that they contain occluded substances—e.g., coal dust—that the soluble or occluded substances produce a physiological reaction and the particles are got rid of, and it is only the particles which are physiologically inert that give rise to inflammatory changes leading to susceptibility to tuberculous infection. In the present case the amount of silica would be small, but the amount of iron-stone dust of a soluble nature exceedingly large, and that this actually became dissolved and permeated the tissues is shown by the iron staining of the specimens. It would seem therefore possible that the iron carbonate and oxide had a specific irritative action because of its solubility rather than its inertness.

It is somewhat significant that X ray photographs taken in 1919 show extraordinary similarity to cases of early silicosis as observed in the Rand mines in South Africa and the Broken Hill mines in Australia.

Whatever point of view we may take, it can hardly be doubted that the presence of large quantities of iron in the lung had an injurious effect in this case; on the other hand, there is no record of the other ten iron-stone miners who were photographed at the same time as this case having succumbed to tuberculosis, and no general conclusions can be therefore drawn that inhalation of iron-stone dust is a common cause of tuberculosis of the lung in iron-stone miners.

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AN UNUSUAL FORM OF LEFT INGUINAL HERNIA.

By John A. C. Macewen, M.B., C.M. Glasg.,

SURGEON, GLASGOW ROYAL INFIRMARY; CLINICAL LECTURER, UNIVERSITY OF GLASGOW.

The following case presents several points of interest which justify its being placed on record.

The patient, a man of 27, was admitted to the Royal Infirmary, Glasgow, complaining of attacks of pain which radiated from the left inguinal region across the lower abdomen. He stated that he had a hernia in infancy, which was easily reduced, and was treated by skein of wool, and later by a truss. The hernia disappeared, and did not return until the age of 19, when he was for the first time engaged in heavy work in a munition factory. At this time the hernia was about the size of an egg, generally disappeared when he lay down, and sometimes remained away for weeks at a time. He again began to wear a truss, and had no difficulty until one morning, shortly before admission, when the swelling appeared just as he was about to put on the truss. On this occasion there was great pain, and the hernia was reduced with difficulty. The hernia had not returned since, but he had frequent attacks of pain.

On examination no swelling was visible or palpable. The cord was possibly slightly thicker than normal, but the external ring was not enlarged, and there was no impulse on coughing. Patient, however, said that the pain he suffered at times was so severe that he desired operation.

Operation was accordingly performed, and a congenital sac was found, containing two appendices epiploicæ. These appendices were attached to the large intestine by long narrow stalks, which passed through an extremely narrow opening at the upper end of the sac. The aperture was just sufficiently wide to permit of the passage of the stalks without strangulation, and thus the appendices were retained in the sac and dragged upon the large intestine which lay in the abdominal cavity close to the narrow aperture in the sac. The radical cure was performed and patient made an uninterrupted recovery.

The case is interesting, apart from the pathological aspect, in respect of the impossibility of diagnosing the condition before operation, and the readiness with which a suspicion of malingering might have arisen had there been a question of compensation.

I am indebted to Miss H. L. Paterson, my junior house surgeon, for the preparation of notes on the history of the case.

Reviews and Notices of Books.

SOCIAL INSURANCE, WHAT IT IS AND WHAT IT MIGHT BE.

By ALBAN GORDON, B.Sc., F.C.S. London: Fabian Society and George Allen and Unwin, Ltd. 1924. Pp. 150. 6*s*.

THIS excellent exposition of the whole subject of social insurance is timely, because the differences of view between the medical profession and the approved societies in respect of the working of the National Insurance Acts are coming almost immediately under the scrutiny of a Royal Commission: in a still better sense it is timely, for it is an earnest attempt to look far ahead, and foresight at any date is opportune. All political parties have placed social insurance in the forefront of their programmes, but the promises have carried little conviction, for many of the politicians have not grasped the principles which must underlie all schemes, so that they have been unable to explain either why they think certain developments desirable, or how they propose to mould affairs in the future. Mr. Gordon's book should be instructive to those who are called upon to take active leadership, and should also inform the public upon those essential facts whose comprehension is necessary if legislative proposals are to be criticised with intelligence, and either helped to fruition or relegated to obscurity in accordance with their merits.

The book is divided into two parts, of which the first sets out the subjects appropriate for insurance, analysing the treatment which they receive at the present; while the second consists of a scheme for the unification of social insurance, where the necessity, indicated in the first part, is assumed for the coördinating and supplementing of existing diverse systems. The need for a national scheme of health insurance is not discussed, and indeed it has been abundantly proved, but so has the justice of some of the complaints against the working of the methods as we now know them; for no one can deny the inadequacy of the benefits provided by the National Insurance Act, the overlapping of the thousands (literally) of separate bodies involved, the neglect of preventive measures in disease, and the lack of personal touch in administration. The grounds for these complaints are set out here, and analysed, with the inference that the working of the approved societies, viewed from the broad national aspect of the prevention and cure of sickness, is proving a failure. Full credit is given to the societies for bringing the Act into operation, and for arduous and anxious labour in carrying-on through the first 11 years of national insurance, and it is suggested that many of the failures and anomalies would have been avoided had the original qualification for an approved society remained a membership of 5000 at least, the multiplicity of small societies having hopelessly damaged the scheme. And at this point in the book a short but revolutionary proposal, as a solution of the main obstacle to efficient action and development, is put forward succinctly. In Mr. Gordon's words, "A simple and efficacious solution lies ready to hand—remove medical benefit from the Insurance Act altogether," because the prevention of the incidence of illness and its prompt treatment upon recognition do not form a logical section of any organisation taking charge of sickness benefit and disablement benefit; for these are self-contained cash affairs, can depend on an actuarial basis, and can be restricted to persons paying contributions—none of which holds good for what is implied by medical benefit. Perhaps if the insurance committees, specially created for the purpose of administering medical benefit in every county and county borough, had worked in accordance with the original designs of the Act, and had taken a large share in the handling of local sanitary affairs, the position that we are now in would have been less critical, but while these committees confine their activities to the disbursing of monies and the scrutiny of prescriptions, the cost at which the country is for their maintenance seems inexcusable. While the insurance committees function only in such a manner medical benefit remains much as it was before the Act—that is to say, it has become the rendering of service by individual practitioners to their insured patients, for these extremely busy men with little machinery by which to obtain the services of specialists or the accommodation of institutional treatment for their charges, cannot deal both with the mass of existing disease and be responsible for the early diagnosis of such maladies as, for example, tuberculosis and venereal disease. Moreover, medical benefit as at present devised has been only directed to a limited section of the working class, and the position of the average middle-class household remains unaffected by the Act, though this class is quite unable to afford such a draft upon its resources as is implied by a major operation or a lingering illness.

The scheme to meet the circumstances, which forms the second part of the book, is a brave attempt to look ahead, based upon a supposition that the need for profound alteration in our system of social insurance is proved; it is put forward tentatively as *a* way, and not as the *only* way of dealing with what is termed "the slimy mess of the Poor-law" and the curse of unemployment. The basis of this comprehensive scheme for national social assurance assumes that the risks of sickness, unemployment, accident, widowhood and orphanhood, indigent old age, and premature death can be provided for by insurance, and can all be administered in one comprehensive scheme, a State national minimum of insurance being insisted on as a corollary to wage minimums and as supplementary to measures for the prevention of destitution. Such compulsory insurance is based in the scheme upon local territorial units, and graded with relation to maintenance of a reasonable standard of existence, while the scheme throughout provides for the prevention of the risks which it proposes to compensate. The contributions from employer and employed, forming the gross income, are to be subsidised, it is proposed, not only from the Central Exchequer, but from the local rates, the last sums implying merely a diversion of the existing Poor-law rate. The insurable matters being thus provided for, schemes for medical benefit—i.e., for the public health of the country—would fall into their logical place to be administered by the public health authorities, full coöperation being insured between the medical practitioner and the State officials, medical and lay.

This is an excellent little book.

CLINICAL STUDIES IN EPILEPSY.

By DONALD FRASER, M.D., F.R.F.P. & S. Glasg., Consulting Physician, Royal Alexandra Infirmary, Paisley. Edinburgh: E. and S. Livingstone. 1924. Pp. 240. 7*s*. 6*d*.

THERE is no disease of which the causation is more obscure than epilepsy. The object of Dr. Fraser's book is to bring together reports of a number of cases of different varieties of the disease in the hope that from their discussion some hint of the pathogenesis of epilepsy may emerge. His arguments are based on the work of Hughlings Jackson, and he quotes Jackson's words again and again with implicit confidence. This attitude of reliance on a great teacher has led, however, to a fault in the book—a lack of precision in the author's own views on the nervous mechanisms at work in epileptic manifestations. In one of the citations (p. 21) there occurs the phrase, "epilepsies in the scientific sense—that is, they depend on discharges beginning in some part or parts of the cortex cerebri," and later on (p. 67) Dr. Fraser's comment, "This hypothesis of a discharging lesion is a very convenient one, though what takes place in the highest levels is, we believe, not a discharge of energy alone but a deprivation of it, leading to uncontrolled discharge from lower and subordinate centres." But surely this distinction is vital, for on it depends whether we regard epilepsy as the result of irritation or of inhibition of the highest centres, and our views of causation will vary accordingly. The hypothesis which looks upon the epileptic attack as a release phenomenon, consequent upon an inhibition of the highest centres, is the one which is the most satisfactory, and although various chapters of this book are imbued with it, it is a pity that it is not stated with more insistence. The hypothesis is applicable to all the psychic and motor disturbances—aphasia, amnesia, fugues, loss of consciousness, mania, convulsions, and twitchings—described in the interesting case-reports; it may be applied also to the negative sensory phenomena—e.g., temporary scotomata—and its application to the positive sensory disturbances, though less easy, is not impossible. Vaso-constriction, if the possibility of its occurrence in the cerebral vessels be granted, affords a satisfactory cause of cortical inhibition, and it is this theory that the author supports; he argues strongly in its favour, and sees its causal agent in some toxin allied to histamine. The chapter devoted to the effects of "the cerebro-spinal reflex" is less convincing. The main interest of the book lies, and is meant to lie, in the case-reports, and here is food for much thought.

Dr. Fraser reproaches British neurologists with the fact that the writings of Hughlings Jackson have never been published collectively, and it may be hoped that at least a representative selection of his papers will be brought together before long.

PATHOLOGICAL TECHNIQUE.

Eighth edition. By Frank Burr Mallory, A.M., M.D., Pathologist to the Boston City Hospital; and James Homer Wright, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard Medical School. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 666. 32*s.* 6*d.*

This work has long ago established itself as a popular and reliable manual of pathological technique. For this, the eighth, edition several sections have been added or rewritten by various collaborators, and the whole book has been thoroughly revised. While the general level of the different sections is high, some, notably that dealing with histology, are outstanding. Should any omissions be considered advisable in future editions, the pages dealing with animal inoculations might well be sacrificed. In its present form this chapter is a poor substitute for practical demonstrations, and is not up to the standard of the rest of the book. We can recommend this volume as one which few laboratory workers can afford to ignore.

MODERN METHODS OF TREATMENT.

By Logan Clendening, M.D., Assistant Professor of Medicine and Lecturer in Therapeutics, Medical Department of the University of Kansas. London: Henry Kimpton. 1924. Pp. 691. 45*s.*

We welcome this book as a rational and straightforward exposition of the present-day outlook on treatment. Singular skill is shown in the apportionment of its true value to each of the methods at our command. It is remarkably free from that type of traditional treatment which is often described but seldom used; on the other hand, it is no less free from the over-enthusiasm of the specialist. Further, the rationale of treatment is well explained on a physiological basis. The section on drugs contains unusually little dross. The first half of the book, consisting of 440 odd pages, is on the "Methods used in Treatment," of which space 140 pages are devoted to drugs. Dietetics, in the same part of the book, fills nearly one hundred pages and gives thoroughly practical hints. The various methods of treatment described in the rest of this section of the volume, such as the production of artificial pneumothorax, transfusion of blood, gastric lavage, are given with sufficient detail to make them of definite value to the man who is called upon to carry them out. In the second portion of the book, entitled the "Application of Therapeutics to Particular Diseases," the facts mentioned in the earlier portion are collected and applied. The diagrams are well chosen, many of them being pictorial descriptions of the stages of the processes used. The pictures of Sippy's[1] method of treatment for gastric ulcer will fix it in the memory in a way which no written account or table of figures could achieve. Agglutination, as shown in another series of pictures, becomes a simple phenomenon to understand. Prof. Clendening's reason for giving no section on antipyretics is interesting—"because the treatment of fever, per se, is a relic of some other age of treatment." But is he right, or at any rate in accord with modern notions, when he says that "fever is the reaction, probably *defensive*, of the body to infection"? We should not, it is true, rashly interfere with a raised temperature, but fever is now generally believed to throw a strain on rather than to defend the bodily mechanism. The book contains a sufficient amount of episode and history to make it pleasant reading. There is a slip in connexion with Thomas Dover, who is said to have recommended his powder in 1762. Dover died in 1742. Generally, this volume deserves high praise; it is so well balanced that it is suitable both as a text-book and as a work of reference, a standing to which few books attain.

AIDS TO PSYCHIATRY.

By W. S. Dawson, M.D. Oxf., M.R.C.P. Lond., D.P.M., Senior Assistant Medical Officer, Maudsley Hospital. London: Baillière, Tindall and Cox. 1924. Pp. 309. 4*s.* 6*d.*

In the "Aids" series any approach to uniformity of size must mean that specialised subjects will receive fuller treatment than can be afforded to "medicine" and "surgery" in the volumes with corresponding titles. In this consideration lies the only adverse criticism which this volume is likely to receive. It is, in fact, a text-book differing little in size and scope from several well-known works on the same subject: the difference in bulk is counter-balanced by the use of small type and comparatively thin paper. The student who supposes that he need learn the whole contents of this volume for his qualifying examination will, no doubt, be erring on the right side, and the mistake will stand him in good stead in the future.

The arrangement is on orthodox lines, with a commendably simple classification of varieties of insanity: indeed, a warning is needed that in practice cases cannot easily be relegated to any of these simple categories, and sometimes not at all. There is an excellent chapter on treatment, a full discussion on all the important legal bearings of mental disorder, and a particularly complete chapter on mental deficiency, in which a simplified series of tests of mental age is given—a feature of the utmost practical value. Psycho-analysis is treated with due impartiality, and there is a valuable section on the Theories of the Neuroses (one would rather have said "Hypotheses"). At its extremely moderate price this book is likely to achieve great popularity.

L'ALIMENTATION NATURELLE CHEZ L'ENFANT.

By Dr. Monteuuis. With a Preface by Prof Nobécourt. Paris: A. Maloine. 1923. Pp. 278 Fr.8.

This posthumous work of the late Dr. Monteuui conveys an appeal to French mothers to eschew methods of feeding based on caloric requirement and to return to the older habits of diet consistin of more natural and less "industrialised" foodstuff The author's principal contention is that the *qualitative* value of the various cereals is the importan factor, and that this varies according to their mode of preparation; white bread is regarded as a national peril. The work consists largely of recipes, and should provide an extremely varied dietary for children.

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[1] The death of Prof. B. W. Sippy was announced o August 15th at Chicago in his fifty-eighth year. He had bee since 1906 professor of medicine in the Rush Medical College.

INFECTION AND RESISTANCE.

Third edition. By HANS ZINSSER, M.D., Professor of Bacteriology and Immunity, Harvard University, &c. New York: The Macmillan Company. Pp. 666. 24*s*.

THE literature on immunity has reached such enormous dimensions that it may be doubted whether any one man is fully conversant with it. Only by exceptional industry is it possible to cope with the flood of modern publications on the subject, and a trained and critical intelligence is needed to divide the wheat from the chaff and to estimate the true value of recorded observations. Under these circumstances a small dogmatic text-book on immunity becomes almost an impossibility, while a more ambitious work may defeat its ends by leaving the student in a state of hopeless bewilderment. Dr. Zinsser follows a middle course with skill and success. His book contains a mine of information, which is developed clearly and logically and with commendable fairness and moderation. Opposing points of view are faithfully recorded, and though the author's personal opinions are never in any doubt, the student is placed in the position to form his own conclusions. For this edition the work has been revised and partly rewritten, and it may be thoroughly recommended as a trustworthy guide to a difficult subject.

INSTRUMENTS AND APPLIANCES FOR OPERATIONS.

Second edition. By Lieut.-Colonel CASTOR. Revised by Lieut.-Colonel CONNOR, I.M.S. Calcutta: Thacker, Spink and Co. 1924. Pp. 34. 1*s*. 6*d*.

THIS little pamphlet describes the requirements for a satisfactory small operating theatre, whether improvised or permanent, and the essential outfit. Lists of the instruments required for various common operations follow, with a few notes as to dressings and the position of the patient during operation. It is all very good and to the point. We would only offer one criticism—there is not really any such organ as the Æsophagus, nor was there even when Æsop anticipated the present authors by also advising the use of a pair of long-bladed forceps in a case of severe dysphagia.

The book is well arranged, and would be of real use to anyone who has to select instruments for operations.

HIPPOCRATES.

Hippocrates and His Successors in Relation to the Philosophy of Their Time. Being the FitzPatrick Lectures for 1921–1922. By R. O. MOON, M.D. Oxf., F.R.C.P. London: Longmans, Green and Co. Pp. 171. 6*s*.

DR. MOON'S admirable lectures should be read in conjunction with the Translation of Hippocrates now appearing in the Loeb Classical Library. The two first lectures deal with Hippocrates in relation to the philosophy of his time and give an excellent account of the various systems of philosophy which affected his opinions—both those schools, such as that of Pythagoras, which existed in pre-Hippocratic times, and those, such as that of Democritus, which were contemporaries of Hippocrates. The last two lectures deal with post-Hippocratic schools of medicine and philosophy. With regard to Pythagoras, Dr. Moon points out that the Greek idea of the soul being a Harmony "seems to have originated from Pythagoras in connexion with Medicine," and he goes on to quote from Plato's Phædo a remark of Simmias the Pythagorean, in which he argues that our soul is a kind of temperament and attunement of the warm and the cold, the moist and the dry, when they are mingled with one another well and in due proportion. Dr. Moon further quotes from "Greek Philosophy" by J. Burnet, who says that "Health means just being in tune, and disease arises from undue tension and relaxation of the strings; even now we speak of tonics in medicine as well as in music." We might remark in this connexion that in the Greek musical scale the tonic was not as we call it, the beginning and the final of the scale, but the middle note of it, and they called it μέση. The intense Greek feeling for the *mean* in everything may have been the reason why they placed their tonic in the middle.

JOURNALS.

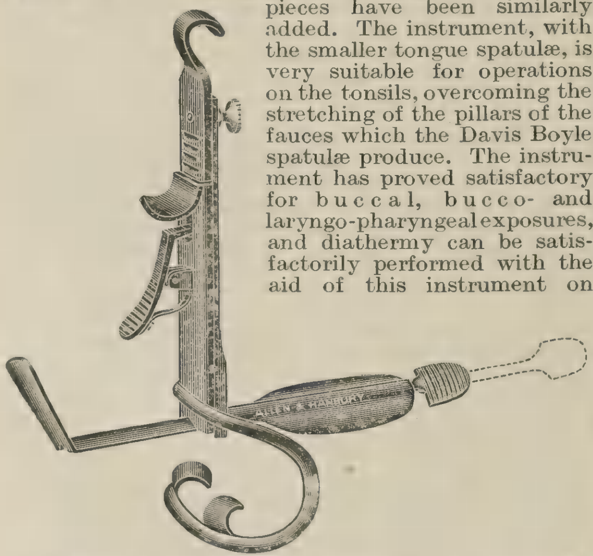
BRITISH JOURNAL OF OPHTHALMOLOGY. September, 1924.—M. L. Hepburn: Classification of Diseases of the Choroid. The writer points out the classification of inflammatory diseases of the choroid alone under 26 different headings, as is done in the American "Encyclopædia of Ophthalmology," is totally unjustifiable. Mr. Hepburn's own classification is under five heads: (1) Inflammatory, (2) vascular, (3) degenerative, (4) congenital, and (5) new growths. The paper is all too short—we could do with more examples, and especially with illustrations of each class. Some controversial matter is included—viz., the inclusion of retinitis pigmentosa as a choroidal disease of vascular origin and the objection to treating macular affections as a class by themselves.—W. G. Laws describes a rare form of retino-choroiditis, possibly associated with pituitary dysfunction. Four cases are cited in which this association occurred. They were characterised by an acute onset with much inflammatory change in the optic nerve head and retina, widespread but always superficial and therefore possibly secondary lesions of the choroid, a self-limited course, and recovery with relatively good vision.—C. L. Preziosi discusses the electro-cautery in the treatment of glaucoma. This paper advocates the use of the electro-cautery in lieu of the trephine in performing a sclerectomy for glaucoma. The chief advantages claimed are: (1) simplicity of technique; (2) impossibility of injuring deep structures; and (3) the slowness with which the anterior chamber is emptied, reducing the risk of hæmorrhage. Iridectomy is not performed, which the writer claims is an advantage, but which may be the opposite.—E. R. Chambers, of Bristol, gives the notes of a case of paralysis of divergence in encephalitis lethargica. In connexion with the recent epidemic he has seen six similar cases within a few weeks. There has been a difference of opinion as to the existence of this condition. Sir George Berry, we note, holds that all these cases are really instances of spasm of convergence and that the so-called centre for divergence in the brain does not exist (cf. Trans. Ophth. Soc., 1901, p. 268).

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.—The first paper in the Journal for August was delivered by Lieut.-Colonel J. A. Anderson before the War Section of the Royal Society of Medicine in April. He explains the new motive of the sanitary specialist in the army, concerned rather with health and its promotion than with disease and its prevention. He considers that there was too much thought in old days of infectious diseases and their prevention to the exclusion of all else; but was it not the work of the pioneers in this field that nearly extinguished typhoid and undulant fevers, and, by reducing illness, left officers with fewer cases to treat, and thus has given them time now to spend on diminishing the lesser ailments of the men?—The first part of Captain J. S. K. Boyd's Parkes' Memorial Prize Essay on the Prophylaxis of Malaria appears in this number. It promises to be a clear and well-balanced account of the problem.—Major C. M. Finny reports the case of a soldier in the Gordon Highlanders, who, running in an inter-regimental cross-country race, twisted his left foot inwards three miles from home, and, as he stumbled, twisted the other ankle. However, he picked himself up and continued to run, finishing twelfth out of a large field. He complained next morning, and "the X ray showed a transverse fracture of both fibulæ two inches from their lower extremities with slight comminution." Treatment consisted in rest and splints for a week, with daily massage, then active movements, and walking was allowed 12 days after the accident.—Colonel J. A. Hartigan tells of a trip he made from Jamaica to Panama to see the wonderful canal. In the days before Gorgas, between 1882 and 1889, he tells us there were 5000 deaths in the Ancon Hospital, 1200 from yellow fever. A devoted official, an amateur gardener, to protect her garden from ants, arranged a shallow wet gutter all round it. In this "the yellow fever mosquito bred, and so the unfortunate patients became infected." The Governor of the Canal Zone is a regular officer of the U.S. Engineers, and the chief health officer, similarly, always comes from the U.S. Army Medical Corps. The other officials are mainly civilians. All water supplied to ships is filtered and "disinfected" (probably chlorinated). What luxury for those who live in ships! The admission-rate for malaria among employees during 1922 was 17 per 1000, but in 1905 it was 514. Great attention to detail marks all the sanitary work in the Zone.

New Inventions.

A MODIFICATION OF DAVIS BOYLE GAG.

THE points in connexion with this instrument are: the ordinary straight tongue spatulæ have been made to fit the Davis Boyle gag, and the epiglottic extension pieces have been similarly added. The instrument, with the smaller tongue spatulæ, is very suitable for operations on the tonsils, overcoming the stretching of the pillars of the fauces which the Davis Boyle spatulæ produce. The instrument has proved satisfactory for buccal, bucco- and laryngo-pharyngeal exposures, and diathermy can be satisfactorily performed with the aid of this instrument on growths in any of the above-mentioned regions. By firm traction, in an arc, on the handle piece and with the assistance of the epiglottic extension piece, a good view of the larynx can be obtained. The instrument is intended to replace in a large measure the cumbersome suspension apparatus, and will be found to meet the case in most of the instances where the latter is usually employed. With this instrument, as with the suspension apparatus, one cannot expect successfully to cope with those cases who have short, thick necks. The instrument is considerably cheaper and of smaller bulk, and is satisfactory for most cases. A point worth mentioning is that the surfaces of the parts are dull black, which fact is of great assistance in that reflections are practically abolished.



Messrs. Allen and Hanburys, 48, Wigmore-street, London, W., are the makers.

Brisbane. R. GRAHAM BROWN, M.R.C.S. Eng.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the statistics of six health resorts. The low birth-rates and high death-rates from all causes and cancer are striking, and accounted for by the large proportion of retired people and invalids who seek out a pleasant climate in which to end their days, and, as a corollary, by the larger proportion of females engaged in domestic service and the smaller proportion of children.

Name of town.	Estimated (R.G.) population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Bournemouth	82,200	13·0	13·6	1·1	1·7	1·6	26	60	2·8
Hove	44,340	11·0	14·0	1·1	2·4	1·9	22	51	4·1
Scarborough..	37,970	17·1	13·8	1·0	2·0	2·3	36	68	3·0
Torquay ..	34,100	14·3	15·1	1·2	1·9	2·2	29	49	2·0
Leamington ..	28,790	16·2	13·5	0·9	1·6	2·1	34	57	4·3
Lytham St. Annes	20,910	11·5	12·4	0·5	2·1	1·5	17	46	0·0

Bournemouth.

Dr. A. D. Edwards gives his own estimate of the population as 95,600, or 13,400 in excess of that of the Registrar-General. The report includes some interesting particulars with regard to the corporation housing scheme. This scheme at present includes 164 houses, all of which contain at least three bedrooms as well as a parlour and bathroom. The rents (inclusive except for the water-rate) are as follows:—

Eighty-eight B type in pairs, 12*s.* 6*d.* per week.
Six four-bedroomed houses in pairs, 14*s.* per week.
Sixty B type in blocks of four, 12*s.* 6*d.* per week.
Four single four-bedroomed houses, 15*s.* 6*d.* per week.
Three single B type, 14*s.* per week.

Evidently the four-bedroomed houses were found to be too big, as four out of ten have been adapted so as to accommodate two families, the tenant of each half being responsible to the corporation for half of the rental. On receipt of a written application the Housing Committee may grant permission to sublet to another family provided that the subtenancy includes a sitting-room, a bedroom with a fireplace, and the joint use of scullery, bathroom, and w.c. The subtenant's rental must not exceed half the rental and water-rate, and is paid direct to the superior tenant. At the end of December, 1923, 51 (or nearly one-third) of the 164 houses had subtenants. At the same date 75 of the tenants had received permission to have poultry runs. The number of poultry kept must not at any time exceed eight, and the height of the poultry shed must not exceed 5 feet. The permission to erect cycle sheds is granted subject to conditions imposed by the Buildings Committee. At the present time there are 21 such sheds.

Hove.

Dr. Augustine Griffith points out that the unnotified cases of pulmonary tuberculosis are usually visitors who have recently come to the town in an advanced state of the disease. In order to secure disinfection of lodgings occupied by consumptives a circular letter was sent to all medical practitioners asking them to notify the medical officer of health of changes of address of tuberculous patients. Dr. Griffith thinks risk and annoyance would also be avoided if house agents inserted a clause in their agreements to secure the disinfection of a house after occupation by anyone suffering from consumption. Dr. Griffith draws attention to the great change in the age and sex constitution of Hove since the beginning of this century. In 1901 the death-rate of Hove needed no correction in order to compare it with England and Wales, whereas now, in order to make a proper comparison, the death-rate requires to be multiplied by the factor 0·761. Between 1911 and 1921 the population under 5 years fell by 9 per cent., that between 5 and 35 increased by less than 10 per cent., while the population over 65 years of age increased 44 per cent. When the correcting factor is used the death-rate of Hove in 1923 is reduced from 13·96 to 10·62.

Scarborough.

Dr. S. F. Linton, in commenting on the high death-rate from cancer, draws attention to the unusually large proportion of female and aged residents. Scarborough has not yet got rid of its privy middens. Of a total of 10,099 houses, 1251 are supplied by privies, in addition to those which have privies as well as w.c.'s. The presence, particularly in the poorer parts of the town, of this large number of privies is a really great danger to the health of the people, says Dr. Linton, and any effort would be worth while to secure their abolition during the next three years. In 1919 an estimate was put forward that 350 houses were needed immediately, in addition to 632 houses for the accommodation of persons displaced by the clearance of unhealthy areas. So far only 95 houses have been provided. Requests are constantly made for permission to occupy houses which have been condemned and closed, and Dr. Linton states that there can be no question as to the harmful effects upon the public health caused by the housing conditions which prevail in the older parts of the town. The total hours of sunshine in Scarborough during 1923 were 1411·1, which is to be compared with an average of 1463·3 for the last 35 years.

Torquay.

Dr. Thomas Dunlop gives a glowing account of the corporation medical, electrical, and Turkish baths, which have been recently reconstructed. The water-supply of Torquay in times of continued drought has given some anxiety in the past. This difficulty is now to be overcome by the laying of a duplicate 14-inch main from Newton Abbot to Great Hill, where a service reservoir will be constructed to contain 1½ million gallons. The new reservoir will not only supplement the supply given by the town service reservoirs but will also supply water to houses at the highest levels. The water is a soft upland surface water which is subjected to mechanical filtration to remove peaty matter, and contains naturally enough lime and magnesia to prevent any plumbo-solvent action. The Torquay Corporation obtained last year a local Act which gives them many useful powers, including provisions for the protection of the food-supply. Persons dealing in shell-fish are required to furnish the source of their supply. The inspectors of the corporation are authorised to inspect carcasses intended for sale in the borough in slaughter-houses within a radius of six miles of the borough. This provision should be very useful when a public abattoir is erected as recommended by Dr. Dunlop and as provided for in the new Act. An effort was made to obtain a clause to enable the corporation to deal speedily with housing defects by their inclusion as nuisances within the meaning of Section 91 of the Public Health Act of 1875, but, to Dr. Dunlop's regret, this clause had to be dropped owing to the opposition of the Ministry of Health.

Dr. Dunlop records his opinion that the sanitary authority which administers the maternity and child welfare scheme should also be the supervising authority for the purposes of the Midwives Acts. He also points out that some of the "bona fide" midwives have ceased to be on the midwives' roll, and now act as so-called maternity nurses, but really as midwives without being subject to any supervision, and that they are encouraged to do so by various medical men. Only 11 expectant mothers attended the centre for antenatal advice, the number of births being 503.

The number of fish and chip shops is growing, and there were six new premises licensed during the year. All the newly established businesses have up-to-date apparatus, but, in spite of that, Dr. Dunlop thinks that in future applicants for licences should produce evidence that the occupiers or owners in the neighbourhood are favourable to the establishment of the new business. The 48 new municipal houses on the West Hill estate, sanctioned by the Ministry, have been completed and occupied. In order to encourage private enterprise the council have sold all the available building sites on the West Hill estate at an average of £50 per site. This scheme is only likely to benefit those who can build houses for themselves, and Dr. Dunlop thinks there is a "very arid prospect" for those who are only able to rent. One builder agreed to build 36 houses for renting, but owing to labour difficulties he has now decided to build only 12. The 76 houses completed during 1923 were mostly detached villas and bungalows, and their erection has had no appreciable effect on overcrowding or in enabling the corporation to close unfit houses. The corporation are endeavouring to deal with the Pimlico insanitary area, but have as a preliminary to erect 50 houses for the accommodation of the dishoused occupiers of the area. Notwithstanding the many difficulties much has been done in the way of housing repairs.

Leamington Spa.

Dr. W. L. Goldie gives an account of a small epidemic of paratyphoid fever. The usual sources of possible infection were investigated with negative results. Towards the end of August suspicion was directed towards a confectionery business. Over 80 per cent. of the cases notified had had food from this establishment. The employer gave every assistance, and ultimately an employee was found whose blood gave a positive reaction to the *Bacillus paratyphosus* B, the particular organism found in all the cases. This employee was the packer at the central establishment and the only person who handled the food that was sent to the different shops under the same management. She ceased work on Sept. 5th, and no further cases were reported after Oct. 6th, a time which would cover the incubation period of the disease and the period of the illness at which a definite diagnosis could be made from the blood of a patient. The evidence that this girl was the source of the epidemic was not absolutely conclusive, says Dr. Goldie, but it was very strongly suggestive. During the year no further houses were built by the council and only 14 by private enterprise. A certain number of houses were converted into flats, some of which are suitable for workmen's dwellings. The Housing Commissioner's estimate of the shortage of dwellings was considerably less than that of the local authority, but Dr. Goldie thinks that the census returns confirm the estimate of the local authority. The hours of bright sunshine during 1923 were 1268·2.

Lytham St. Annes.

Dr. John P. Litt, acting medical officer, submits the report owing to the resignation of Dr. G. C. Walker in March, 1924. During the year the Ministry of Health conducted an inquiry into the state of the mussel beds in the Ribble estuary. As these beds are all liable to sewage pollution, the Minister decided to make regulations prohibiting the sale of mussels from the estuary unless they could be effectively cleansed. As no place could be found in the estuary where the water was sufficiently clean to admit of cleansing the shell-fish by means of the ordinary methods of re-laying, the beds were closed in October, 1923. The veterinary inspector, Mr. J. R. Rigby, reports that the cattle in the borough dairy farms, numbering about 600, were examined quarterly. Mr. Rigby found among them three cases of tuberculosis of the udder and eight cases of tuberculosis of the lungs. All the affected animals were removed from the dairy herds. Six of the milk samples taken were seriously deficient in fat

Investigation of the matter disclosed very unequal inter-milking intervals—namely, eight hours between the morning and afternoon milkings and 16 hours between afternoon and morning. The vendors in every case were cautioned, but we are not told that they undertook to change their milking times. The sanitary inspector, Mr. H. Yates, hopes that the council will reconsider the limit of permissible black smoke adopted by them. Each chimney in the borough may now emit black smoke for two and a half consecutive minutes so long as there is an interval of 15 minutes between each emission.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 27TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 44; scarlet fever, 1805; diphtheria, 865; enteric fever, 91; pneumonia, 495; puerperal fever, 32; cerebro-spinal fever, 6; acute poliomyelitis, 31; acute polio-encephalitis, 3; encephalitis lethargica, 53; continued fever, 1; dysentery, 2; ophthalmia neonatorum, 124. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 8 from scarlet fever, 28 from diphtheria, 6 from measles, 21 from influenza. In London itself the diphtheria deaths numbered 11, and the deaths from infantile diarrhœa 22.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XX.—INCOME-TAX ASSESSMENTS:

HOW TO VERIFY THEIR CORRECTNESS.

By W. R. Fairbrother, F.S.S.,

ACCOUNTANT AND INCOME-TAX SPECIALIST.

Notices of assessment for income-tax in regard to the year ending April 5th, 1925, are being daily issued by the Revenue authorities. As any appeal against the amount of the assessment must be given in writing within 21 days of the receipt of the notice, it is obviously essential for the contents to be carefully checked at once. Attention should be directed not only to the amount of the assessment but also to the deductions, allowances, and reliefs claimable by the taxpayer. These were set out categorically in a previous article.[1] As the average medical man is subject to an assessment the nature of which is somewhat complex, it is very necessary that vigilance should be exercised.

Verification of Items.

This will best be achieved by following the order in which they are stated in the notice of assessment.

1. The amount of assessment as shown should accord with the return of profits previously made. If there is an increase in the notice an explanation should be asked for so that the discrepancy may be reconciled. It would be well to remember that even if the amount agrees with the return there are a number of somewhat unusual expenses which should have been allowed. These expenses should have included such well-known items as rent, rates, and water, repairs, assurance, drugs, instruments, bottles, lighting, heating, postages, stationery, telephone, periodicals, text-books, wages, and National Health Insurance. Included also in the expenses should have been the cost of car-running (or hire) expenses, whilst the amount allowable in respect of the cost of renewal of any car should have been deducted. Another item which is liable to be overlooked is the cost of board of locum tenens, whose salary is not so liable to be missed as an expense. The cost (or partial cost) of boarding servants, occasional servants, odd man or boy is also presumed to have been allowed. Still another point worth watching is that any income from public appointments is included in the general assessment as it is permissible to do so, and the resulting advantage is the receipt of one notice instead of a number varying with the sources of professional income.

2. The earned income allowance of one-tenth of the amount of the assessment should be shown. The limit to the amount of this allowance is £200.

3. The personal allowance of £135 is given in the case of a single person, whilst £225 is allowed to a married man. An interesting point to watch in this connexion is the allowance of the additional £90 even if married on the last day of the income-tax year. A still more interesting point, however, is to remember that a claim for refund of income-tax on £90 may be made if married before April 5th, 1924, and tax has already been paid for that year when single allowance only had been given.

4. The housekeeper allowance of £45 has been increased to £60 as from April 6th, 1924. This allowance is given in respect of persons taking charge of a widower's child, or acting as housekeeper merely, or in respect of a widowed mother having charge of a brother or sister in respect of whom the child allowance is given. Formerly a widower could not claim in respect of a housekeeper unless he had a child being looked after by such housekeeper, but this condition has been repealed.

5. The allowance in respect of children amounts to £36 for the first child and £27 for each other. The child must have been living on April 6th, 1924, to enable the allowance to be given in the current year, but it must not be assumed that if the child is born later the allowance is lost, for what is foregone in the first year is gained in the last year of claim—i.e., there are 16 annual allowances, and no more, given in respect of each child unless, of course, the proviso as to attending school beyond the age of 16 comes into play.

6. A deduction of £25 is claimable in respect of a dependent relative maintained by a taxpayer and who is incapacitated by old age or infirmity from maintaining himself or herself or is his or his wife's mother, whether incapacitated or not. A similar amount is deductable in respect of a daughter resident with the taxpayer and upon whose services he is compelled to depend by reason of old age or infirmity. No allowance is given where the dependent relative's total income is over £50 per annum.

7. After the deductions and allowances have been set against the assessment the net amount becomes taxable, and the first £225 of such taxable income is assessed at 2*s.* 3*d.* in the £, the remainder being at 4*s.* 6*d.*

8. When the total tax has been calculated ther should be deducted the allowance in respect of lif assurance, which varies from 2*s.* 3*d.* to 4*s.* 6*d.* in the £

9. If the first £225 of taxable income include items already taxed at the full rate at the source an allowance is made to bring the total deduction t the equivalent of £225 at 2*s.* 3*d.*

Professional Adjustments.

When all the foregoing checks have been institute it still remains necessary to watch the possibility of a adjustment in the assessment which is provided fo under various provisions in the case of profession Consideration may be claimed in such circumstance as the following:—

1. If a change in ownership takes place befor April 5th, 1925, the current year's assessment apportionable between the two practitioners on time basis.

2. Where practice is discontinued a claim shoul be made to have the assessment reduced to the actu profit of the income-tax year.

3. If practice was commenced within the last fou years, a claim may be made later for reduction the assessment to the actual profit of the year.

4. If the practice was taken over a claim may made for adjustment to the actual profit (instead the usual average) if such profit is less through som specific cause arising since or by reason of the takin over.

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[1] The Lancet, Jan. 12th, 1924, p. 81.

THE LANCET.

LONDON: SATURDAY, OCTOBER 11, 1924.

THE FUTURE OF HEALTH INSURANCE.

At a time when the Royal Commission is about to resume its labours it seems appropriate to review the present position of national health insurance, to see in what directions new ideas are pointing the way for future developments, and to discover the principles which should underlie a truly national scheme of health insurance. Sir George Newman's running commentary on the working of the Act, which we reprint in large part on p. 768, affords an admirable basis for discussion. That the present scheme has justified its existence was made evident in the whole-day conference[1] at the Bradford meeting of the British Medical Association, when representatives of every section of the community affected by the Insurance Acts expressed concurrence with its general principles. Among the advantages of the present scheme may be enumerated the following :—

1. It has helped to establish a health consciousness in the State.
2. It has revealed a volume of sickness among the workers not hitherto realised.
3. It has shown the effect of sickness on industry and the bearing of environment and conditions of industry on sickness incidence.
4. It has demonstrated the scope for coöperation between insurance practitioners and the medical officer of health.
5. It has pointed to the need for adequate hospital accommodation and for specialist and consultant services.
6. It has proved the possibilities of a thoroughly efficient medical service in providing an opportunity for the insured person to consult a general practitioner at the earliest stages of illness and for the practitioner to study disease in its beginnings.
7. It has brought the practitioner face to face with the problem of industrial efficiency.

Nevertheless, with all the progress recorded there is still no doubt that, as Sir William Glyn-Jones remarked at Bradford, the scheme has not redeemed the many promises made for it by its political parents at its conception. How the defects can be remedied and what immediate developments can be undertaken will doubtless be the chief concern of the Royal Commission. Many suggestions are being made, some of which affect the medical service, others the approved societies, the insurance committees, and the administrative machinery in general. The medical service could be strengthened by improving the conditions of work and the remuneration of the practitioners. This would increase the number of the doctors undertaking service, and, to quote Sir William Glyn-Jones again, make those practitioners as anxious to secure and retain insurance patients as they now are to secure and retain private patients. If the insured person could be trained to discriminate and to recognise efficient treatment, then the free choice of doctor would have its proper effect in the law of supply and demand. A natural corollary would be still further reduction of the "overcrowded" lists and a solution of the difficulties of the newly-qualified in getting an introduction to practice while they are young, vigorous, and efficient. The need for organisation in the medical profession is still insistent and there is scope for real scientific team work. Institutions in the nature of clinics and laboratories attached to special health centres should be established without delay. In his address last week to the students of Westminster Hospital, Mr. H. J. Waring, Dean of the Faculty of Medicine of London University, reminded us that modern medicine demands coöperative and institutional investigation and treatment, from which, he said, a pretty radical alteration in the National Insurance Acts must follow. Perhaps some one will introduce the four-year old report of Lord Dawson's Committee to the notice of the Royal Commission. The Consultative Council over which Lord Dawson presided was so impressed with the urgency which attaches to the orderly building of a constructive health policy, and with the close relationship which exists between medical services and the problems connected with Poor-law and local government, that they set forth in an interim report a model scheme of health centres. The general availability of medical services could, in their opinion, only be effected by new and extended organisation. This report is every whit as topical now as when it was issued.

The development of medical benefit will become more pressing than ever if and when the dependents of insured persons are included in the scheme. The conditions of service must be materially altered if the insurance practitioner is to perform the functions set out by Sir George Newman. How is the practitioner to deal with the "beginnings of disease" unless he has time to examine all his patients thoroughly? He would welcome any scheme of coöperation which rendered specialist and consultative assistance possible to his poorest patients. At present he is too much an isolated unit, and as such his usefulness and service are much curtailed. In the admitted difficulties of "certification," that nightmare of panel practice, a great deal more help might be given. The practitioner needs to learn the criteria on which the question of incapacity is decided; though memoranda are issued from time to time by the Ministry of Health, it is really in concrete cases that the principles need to be demonstrated. The position is complicated by the fact that at present different standards are employed by practitioners, referees, and approved societies. The nature of his relationship to the approved societies needs to be brought more clearly to the knowledge of practitioners. There is, in fact, room for much greater coöperation, which can hardly come to pass until more sympathetic relations are set up between them. The machinery of approved society administration needs overhauling. It is doubtful whether these societies do now serve the highest interests of the State; their aims are too narrow and their views too cramped for the purposes of a great health insurance scheme. But there is welcome evidence in some quarters that a wider view is being taken, and it may still be possible to enlist the services and coöperation of the societies in the great task of preventive medicine. Mr. Alban Gordon, whose book entitled "Social Insurance" is reviewed on p. 753, himself the secretary of an insurance society, criticises severely the administration by approved societies and such anomalies as the inadequacy of the benefits, the overlapping of the thousands of separate societies, the neglect of preventive measures in disease, and the lack of personal touch in administration. He suggests that medical benefit should be taken out of the Act altogether, inasmuch as the prevention of illness and its prompt treatment when recognised do not form a logical section of any organisation taking charge of sickness and disablement benefits; these are self-contained affairs, which rest on an actuarial basis and can be restricted to persons paying contributions. None of this holds good for what is implied by medical benefit. To take medical benefit out of the Act, a suggestion brought forward and endorsed at Bradford, would involve the abolition of insurance committees. Many people, on the other hand, are satisfied that in the larger towns and counties these committees have proved their efficiency in administering army and navy insurance funds, and the affairs of deposit contributors. This is another problem for exploration by the Royal Commission. Lastly, there is the insured person who must be educated to play his part in the scheme. The doctor is still his best friend, but some steps appear to be necessary to secure a useful discipline to enable the doctor to render his full service, both to the individual and to the State. At present the free choice of doctor and the unlimited right to transfer enjoyed by the insured person are working to the vicious end of making the doctor his slave instead of his adviser and guide. The responsibility of the practitioner to his patient is great, but his duty to the State is still greater.

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[1] THE LANCET, Sept. 13th, p. 572.

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THE GROWTH OF THE JAWS.

Sir Arthur Keith told the students of the Royal Dental Hospital last week that Nature can be trusted to give mankind the dentition it deserves. Our knowledge of the development and growth of the jaws is not very complete, and what is known is not applied. In the earlier part of the year the Dental Board arranged for a course of lectures on this subject to be delivered in various centres. These have now been published in book form, and comprise contributions from Profs. E. Fawcett and J. C. Brash, Mr. G. Northcroft, and Sir Arthur Keith. The volume forms a monograph on the growth of the jaws, both normal and abnormal, of value and interest not only to the dentist, but to the anatomist and anthropologist. It is no disparagement to the masterly review of the development of the jaws by Prof. Fawcett, or to the suggestive chapter by Mr. Northcroft, to say that the chief interest of the reader will centre on the two lectures by Prof. Brash and the fascinating speculations of Sir Arthur Keith. The chapters on the growth of the jaws and the genesis of deformities of the jaws, by Prof. Brash, embody a large amount of original work which will make it necessary to revise some of our previous conceptions of the mechanism of deformities of the jaws. Modern knowledge of the principles underlying mandibular growth commenced with the classical work of John Hunter, who demonstrated very clearly the chief sites of growth and was one of the first to employ the method of superimposition of jaws at different ages. At a much later date Sir John Tomes and G. M. Humphry, working independently, showed for all time the way in which the mandible increases in size from infancy to adult life. It is a striking tribute to their accurate observations that the general principles enunciated by them still hold good, even although some of their conclusions need to be modified. Brash has used on pigs the "madder" method, in which the bones are stained red. His work confirms the views of Hunter and Tomes that growth of the mandible is a combination of surface addition of bone with surface absorption. His specimens show to an extent not always realised how great is the amount of absorption of bone which goes on concurrently with the addition of bone. Prof. Brash challenges the long-accepted view that the alveolar arch of the deciduous teeth is the same as that of the successional permanent teeth. By means of measurements J. Tomes sought to show that the arch of the ten front teeth did not alter and that the greater width of the adult jaw as compared with that of a child was accounted for by additions to the outer surface of the bone. There can be little doubt that in this respect Tomes was wrong and that the alveolar arch of the permanent teeth is definitely larger than the deciduous arch. Both J. F. Colyer and G. Franke, by means of measurements of models of the jaws of the same individual at different ages, had come to this conclusion, which is now confirmed by Brash.

The problem of the growth of the maxilla is complicated both by its connexions with other bones and by the part it plays in the growth of the nasal cavities. Up to quite recently our knowledge of the way in which the maxilla grows was very slight, and it was not until Sir Arthur Keith and G. Campion published their remarkable paper on the Mechanism of Growth of the Face,[1] in 1921, that the gaps in our knowledge began to be filled. This paper gave a new orientation to our ideas on the growth of the face, and has already become classic, even although its full significance has not yet been realised. Prof. Brash acknowledges in handsome terms his indebtedness to their work, which is, to quote his words, "a first essay in a difficult and practically uninvestigated field of knowledge." Keith and Campion chiefly studied the factors involved in the normal growth of the face; Brash attempts to carry the work a stage further by applying the principles of normal growth to account for the genesis of deformities of the jaws. Keith and Campion used extensively the method of superimposition of drawings to determine sites of growth increment. Brash, while admitting the general value of this method, points out that it has its fallacies. His own conclusions, drawn both from madder specimens and from measurements of human jaws at different ages, do not agree in all respects with those of Keith and Campion, yet the general agreement is striking and affords valuable confirmation of their work. In general, it may be said that the growth of the maxilla is a complicated combination of surface addition with sutural growth. The relative importance of these two factors has not been fully worked out, but it is possible to estimate with some degree of accuracy the amount of growth which occurs at the different sites of growth activity. An interesting section of Brash's work is that which deals with growth of the palate. The term "growth in height of the palate" is a misleading one, for actually the level of the palate descends. This is brought about by addition of bone to the under surface of the palate, accompanied by absorption of bone on the upper or nasal surface. The greater depth of the palate of the adult, as compared to the shallow palate of the infant, according to Brash, is due to downward growth of the alveolar process. Both palate and alveolar bone are themselves growing downwards, but the alveolar growth outstrips that of the palate and it is this factor which determines the height of the palate. This conception has an important bearing on the way in which the high palate, which so often accompanies the adenoid facies, is produced. It has often been maintained that in this type of deformity the palate is forced upwards by external pressure due to mouth-breathing which is the more readily facilitated by the lack of growth of the nose owing to nasal obstruction. BRASH vigorously combats this view by a wealth of convincing argument. The high palate, which is the commonest of dental deformities, is due either to an excessive downgrowth of the alveolar process or to decreased growth of the vault of the palate, or to a combination of both. The important point which BRASH brings out is that the increased height is present at an early age, certainly before the age of 8 years. The narrow dental arch which is always present in the high palate is to be accounted for by the fact that in normal jaws the alveolar bone grows both downwards and outwards, whereas in the abnormal jaw the growth is chiefly vertical or may even be inwards. Comparative figures show that the actual amount of growth change in both normal and abnormal jaws after the age of 8 is about equal. BRASH considers that the early age at which deformities of the jaws become established puts out of court any explanation of their ætiology based on mechanical grounds. He suggests that their causation must be due either to hereditary factors or to nutritional factors. These latter may act directly or by influencing the glands concerned with the regulation of growth.

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[1] Dental Record, 1922.

To the orthodontist concerned with the prevention and treatment of irregularities of the teeth and jaws this book, together with the earlier paper of KEITH and CAMPION, should prove indispensable. The volume is a notable addition to our knowledge of a particularly difficult subject, and should do much to place that important branch of dentistry which deals with the treatment of dental deformities on a more rational basis.

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THE MAUDSLEY HOSPITAL.

THE progress of the energetic early treatment of insanity, which is now being carried on at the Maudsley Hospital, is being watched with interest, and the first annual report is therefore of great importance. It is, perhaps, hardly necessary to explain that the hospital was built by the London County Council out of funds left by the late Dr. HENRY MAUDSLEY, the first among psychologists to lay stress on the fact that mental disorder may often be an expression of physical illness, and therefore amenable to appropriate treatment. A provision in the London County Council Act, 1915, enables the patients to be admitted on a voluntary basis; no person under certificates is received, and no patient is certified within the walls of the institution should removal to another mental hospital eventually prove advisable. Persons "having a legal settlement in the County of London" are admitted for a payment in proportion to their means; the full maintenance-rate (£5 per week) is charged to those coming from elsewhere. Further requirements are an undertaking by some responsible person as to the provision of other arrangements for care—if necessary in less than 24 hours from receipt of notice, and the approval of the medical superintendent, or his deputy, as to the medical suitability of the proposed patient, this generally involving a personal interview. The former condition has been waived in a few cases, and indeed it is evident that in every way the staff at the hospital and the corresponding department in the County Hall have made every effort to avoid unnecessary formalities and delays. In regard to "medical suitability," it is hardly surprising that difficulties should have arisen: relatives, and practitioners acting under pressure from them, naturally minimise such features of a case as are likely to render it an unsuitable one for admission, and the condition of a personal interview with the patient is regarded as necessary unless the hospital is to become a "clearing-house to the mental hospitals of the county."

The first essential for comprehending the work which is being done is to note the composition and numbers of the staff. In a hospital of about 150 beds, with private rooms for female patients and with an out-patient clinic, there have been no less than 18 medical officers working during the year. There are five permanent resident officers; four medical officers at a time from other mental hospitals under the Council are being seconded, with the pay of their rank, for periods of three months to the Maudsley for either clinical or pathological work; and in addition "an indefinite number of medical men or women (preferably those with previous experience of nervous and mental disorders) may be appointed as voluntary clinical assistants on either part-time or whole-time basis." Eleven such appointments have been made, there being an average of six assistants working at any given time, and even with this assistance we learn that the work of the regular medical officers remains extremely heavy. This indicates what is involved when psychotherapy is undertaken on a large scale, and when neuroses are dealt with seriously. The total number of cases treated during the year was 1012, of whom 894 attended the out-patient department. The number of admissions was 452, and of those discharged after a full course of treatment (i.e., not prematurely for financial or other reasons) 35 per cent. were recovered, 35 per cent. were improved, and 30 per cent. were not improved. Those interested in such projects as are typified in the Maudsley Hospital will look with keen attention to the types of case admitted, for herein lie at once the greatest difficulty of such work, and the clue to any success it may achieve. No very definite indications are given by Dr. EDWARD MAPOTHER, the medical superintendent, as to the criteria of suitability which have been adopted; the question is obviously not a simple one, and every rule must have its exceptions. We understand, however, that the omission was due to the exigencies of space in the report, and that Dr. MAPOTHER proposes to discuss in a supplementary article the advantages and limitations of treatment on a voluntary basis and the types of suitable cases which actually present themselves. General paralytics, it may be gathered from the report, are admitted for the purpose of applying recently suggested methods of treatment; the appearance of dementia præcox in the statistical tables indicates, we are told, the difficulty of prognosis in the initial stages, the diagnosis having been reluctantly reached after observation in cases which at first seemed of another and more hopeful type. The nature of the year's admissions is broadly as follows: alcoholism, 12 cases; dementia præcox, 34; paranoid types, 32; manic-depressive types, 13; depression, 92; neurasthenia, 23; hysteria, 21; anxiety states, 57; and obsessional states, 21 cases. Various tables afford exact information as to the duration of the attack, accompanying physical conditions, and the duration and result of treatment; another table correlates diagnosis and method of disposal.

Of the therapeutic resources of the hospital it is enough to say that physical treatment, as exemplified by baths and massage, is employed to a great extent, while the close connexion between the Maudsley and King's College Hospital provides for much special work; the dietary is particularly studied from the points of view of individual requirements and attractiveness; great stress is laid on open-air treatment, by night as well as by day, and the minimum possible restrictions on liberty are imposed. A variety of research has been undertaken. The subjects studied include basal metabolism, blood-sugar variations, including those induced in response to drugs, liver function, the oculo-cardiac reflex, the effect of drugs on the cytology of the blood, the reaction of the vascular system to the ingestion of food, and to postural and temperature changes, variations in the power of oxidising phenols, and the psycho-galvanic reflex. The special treatments employed have included gland therapy (seven single and two compound gland preparations being used, with no very convincing results), injections of insulin in cases where pancreatic function had been disturbed, the employment of arsenical and bismuth compounds, and inoculation with malaria in the treatment of general paralysis, and last, but not least, psychotherapy, including full courses of psychoanalysis. These observations are intended only to indicate the type and method of the work which has begun at the Maudsley Hospital. It is in a unique position, at least as regards England. Its possibilities are still untried, and it is important that every practitioner, particularly in London, should be and remain aware of its existence and purpose.

Annotations.

"Ne quid nimis."

THE SUPPLY OF DRUGS TO ADDICTS.

NEXT month, as we noted last week, an international conference is meeting in Geneva with a view to limiting the production of harmful drugs to the actual medical and scientific needs of the world. Information as to the amount required for legitimate needs is accumulating. The results of an American narcotic survey have just been published; a county in Maryland was chosen for the purpose owing to its remoteness from the sea-coast, its largely rural character, its diversified population, and its easy access from Washington. The records were studied of all the narcotic registrants in the county of Allegany during the period July 1st, 1922, to June 30th, 1923, which involved visits to 69 physicians, 12 dentists, 20 retail and 3 wholesale pharmacists, 1 veterinarian, and 5 hospitals and sanatoriums. The total opium equivalent of opiates used was 69·81 pounds of opium and the total cocaine equivalent was 293·03 pounds of coca leaves. Taking the population of the county as 69,938 from the 1920 census, the per capita consumption works out at 6·98 gr. of opium and 29·32 gr. of coca leaves. On the same basis, to supply the entire United States with its population of 106 millions would require annually 105,697 pounds of opium and 443,988 pounds of coca leaves. The Washington Public Health Department regards these data as representing fairly accurately the medical requirements in opiates at the present time, but not in the case of cocaine, since most of the dentists who then used cocaine have since discontinued its use in favour of the synthetic local anæsthetics.

In this country the difficulty of withholding morphine and heroin from those addicted to their use is pressing very hardly on the medical man. The Minister of Health has now appointed a Committee with the following terms of reference:—

> To consider and advise as to the circumstances, if any, in which the supply of morphine and heroin (including preparations containing morphine and heroin) to persons suffering from addiction to those drugs may be regarded as medically advisable, and as to the precautions which it is desirable that medical practitioners administering or prescribing morphine or heroin should adopt for the avoidance of abuse, and to suggest any administrative measures that seem expedient for securing observance of such precautions.

The members of this Committee are: Sir Humphry Rolleston, President of the Royal College of Physicians; Sir William Willcox, Honorary Medical Adviser to the Home Office; Dr. J. W. Bone, representing the British Medical Association; Dr. R. W. Branthwaite, Board of Control; Dr. G. M. Cullen, Scottish Board of Health; Prof. W. E. Dixon, Reader in Pharmacology, Cambridge University; Dr. John Fawcett, Physician, Guy's Hospital; Dr. A. Fulton, Divisional Medical Officer, Ministry of Health; and Dr. J. Smith Whitaker, Senior Medical Officer, Ministry of Health. The chairman of the Committee is Sir Humphry Rolleston, and the joint secretaries are Dr. E. W. Adams and Mr. R. H. Crooke, to whom all communications should be addressed at the Ministry of Health, Whitehall, London, S.W. 1.

DANGEROUS DRUGS IN GENERAL PRACTICE.

THE current issue of the London Panel Committee's *Gazette*, which circulates among practitioners on the panel in the County of London, contains a very clear statement of the obligations of the practitioner arising from the Dangerous Drugs Act, 1920, and the regulations made under it. The drugs affected are morphine, cocaine, ecgonine, and diamorphine with their respective salts, also medicinal opium with its preparations, and are included under the Act when the finished preparation contains more than one-fifth per cent. of morphine and more than one-tenth per cent. of cocaine, ecgonine, or diamorphine (heroin). Prescriptions containing these drugs must be written, dated, and signed by the practitioner; in the case of private prescriptions his address must be given, but this is not obligatory on insurance prescriptions. Prescriptions in all cases should give the name and address of patients. Practitioners may obtain from chemists drugs for personal administration, and orders for these should give the practitioner's name and address in writing. Messengers should be provided with documentary evidence that they are entitled to receive such drugs. Practitioners have to keep records of the purchase and sale of dangerous drugs other than for personal administration or given under direct supervision. Any prescription containing when finished less than a certain percentage of the drug may be dispensed as before the Act. The upper limit in the case of some of the more usual preparations is as follows:—

	Per ounce.	Per drachm.
Chlorodyne, B.P.C.	190 ♏	22 ♏
Cocain. hydrochlor.	0·4 gr.	0·05 gr.
Diamorphin. hydrochlor.	0·4 gr.	0·05 gr.
Liq. morph. acet.	120 ♏	15 ♏
,, ,, hydrochlor.	106 ♏	13 ♏
Morphin. alkaloid (cryst.)	1·0 gr.	0·12 gr.
,, acet.	1·2 gr.	0·15 gr.
,, hydrochlor.	1·15 gr.	0·14 gr.
,, sulph.	1·12 gr.	0·14 gr.
,, tartr.	1·12 gr.	0·14 gr.
Tr. opii	95 ♏	11 ♏
Tr. chlorof. et morph. co.	95 ♏	11 ♏

Certain preparations containing opium or its derivatives are outside the regulations altogether—viz.: Tr. camph. co.; tr. chlorof. et morph. (chlorodyne B.P. '85); tr. opii ammon.; troch. morph.; troch. morph. et ipecac. Other preparations are exempted on the understanding that if any other medicament is mixed with them, and the percentage of dangerous drug exceeds the limit, the product then comes within the regulations. These are: Cereoli iodof. et morph., B.P.C.; empl. opii, B.P., 1898; lin. opii, B.P.; lin. opii ammon., B.P.C.; pasta arsenical., B.P.C.; pil. hydrarg. c. opio, B.P.C.; pil. ipecac. c. scill., B.P.; pil. plumbi c. opio, B.P.; pil. digitalis et opii co., B.P.C. (Heim); pil. hydrarg. c. cret. et opii, B.P.C. (Hutchinson); pulv. cret. aromat. c. opio, B.P.; pulv. ipecac. co., B.P. (Dover's powder); pulv. kino co., B.P.; suppos. plumb. co., B.P.; tab. plumb. c. opio, B.P.C.; ung. gall. c. opio, B.P. (gall and opium ointment); ung. gall. co., B.P.C.

All these points can be found in official circulars, but it is a boon to the practitioner to have them set out thus.

EUGENICS BY LEGISLATION.

THE Ministry of Health has returned a cautious negative to a Parliamentary question concerning possible legislation on eugenic lines. As our Parliamentary correspondent notes, Mr. Black had asked whether, in view of the financial commitments of the nation in respect of persons who through physical or mental deficiency become a charge upon public funds, a Royal Commission would be appointed to advise upon the restriction of procreation of children by unfit parents. While this country is not yet prepared for advanced eugenic legislation, it is interesting to note what legislatures are doing elsewhere. A recent volume of the Society of Comparative Legislation, containing summaries of the laws passed in different parts of the world during 1922, shows several examples of American enactments on this topic. The State of Nebraska, for instance, forbids the marriages of persons afflicted with venereal disease, and insists that no one adjudged afflicted with hereditary epilepsy or insanity shall marry unless first submitting to a sterilising operation ; applications for licences to marry must be accompanied by affidavits of freedom from venereal disease. Montana provides for the sterilising of inmates of what are euphemistically called "custodial institutions," who are insane or feeble-minded or idiots or epileptics. An essential and certainly desirable feature of the Act is the insistence on adequate medical advice ; there is a hearing before a board with a right of appeal therefrom to a court of law. These American provisions are, of course, by no means the first of their kind. As long ago as 1895 Connecticut forbade the marriage of epileptic or feeble-minded persons under penalty of a minimum term of three years' imprisonment. Ten years later the Act was attacked in the Supreme Court as being unconstitutional but was upheld, though it was subsequently modified. Wisconsin, Maine, and Delaware are other States which have passed similar legislation. The underlying principle is the same, but the measures differ in that sometimes they actually make marriages void, sometimes they merely punish those who marry. Another American type of eugenic enactment is aimed not so much at preventing the birth of unfit children as at putting an end to sexual assaults by degenerates. Thus California in 1922 empowered the criminal courts to direct an "operation to prevent procreation" to be performed on persons convicted of carnal abuse of girls under ten years of age. Indiana, Iowa, and other States have passed similar Acts in the past, but the courts have sometimes held the laws to be contrary to the constitution ; in one case the operation was held not to be a "cruel" punishment, in another it was held "cruel and unusual," and therefore unconstitutional. This supervision of legislation by judges is always a little puzzling to us in this country where legislators are unhampered by a rigid written constitution. We have not, however, hitherto heard much of eugenics at Westminster, unless we are to ascribe to a vague eugenic instinct the reluctance of certain legislators to pass such measures as the Deceased Wife's Sister's Bill.

THE RESULTS OF CONSERVATIVE TREATMENT OF POTT'S DISEASE.

NOW that the treatment of Pott's disease is becoming operative, and Albee's operation is extensively employed, it is most desirable that, for the purpose of comparison, information should be available as to the results obtained by more conservative measures. For it is obvious that there is no indication for operative treatment, however good its results, if patients recover as often, as soon, and as permanently under less heroic measures. To provide such material for comparison, Dr. Santeri Leskinen,[1] of Helingsfors, has collected the evidence obtainable in connexion with 241 cases of Pott's disease treated at his hospital on conservative lines in the period 1895–1920. As many as 21 of these patients died in hospital, and of the remaining 220, only 137 could be traced. There were 126 males to 115 females, and 68 per cent. were between the ages 1 and 10. The cervical vertebræ were involved in 16·2 per cent., the thoracic vertebræ in 56·4 per cent., and the lumbar vertebræ in 27·4 per cent. Thus, the thoracic vertebræ were involved in more than half the total number of cases. But when the incidence of the disease in each vertebra was calculated, it was found that it was highest for the lumbar vertebræ, each of which accounted for 13·2 per cent. of all the cases, whereas the corresponding figures for each thoracic and cervical vertebra were 11·3 per cent. and 5·5 per cent. respectively. In addition to the 21 patients dying in hospital, there were 43 who died after discharge. Thus, the mortality among the patients who could be traced was as high as 40·5 per cent. It was much higher for males than for females, the respective figures being 50 per cent. and 32 per cent. Tuberculosis or its sequels was the cause of 57 of the 64 deaths. The survivors who were traced were classified according as they were still ill, fairly well, or cured. The figures for these three classes were, in the order named, 12, 17·1, and 30·4 per cent. respectively. It will thus be seen that with a mortality of 40·5 per cent., and a complete recovery-rate of only 30·4 per cent., there was much room for improvement on the results of conservative treatment. The best results were obtained in disease of the cervical vertebræ, only 26·3 per cent. of the patients having died, whereas 68·5 per cent. had completely recovered. Disease of the thoracic vertebræ responded least satisfactorily, the mortality being 46·3 per cent. and the recovery-rate 21·1 per cent. in this class. When the patients were classified according to their ages, it was found that the mortality was highest in the first two decades, in which it was 41 and 44·8 per cent. respectively. It was lowest in the third decade, in which it was 30·8 per cent. After the age of 40 the mortality became higher again. The average duration of treatment in hospital was eight months for the patients who were cured, six and a half months for the patients who remained fairly well, and seven and a half months for those who remained ill. It is sincerely to be hoped that operative treatment may give better results.

A CARDIOVASCULAR SYMPOSIUM.

ATTEMPTS to reconcile the rapid advance of knowledge with the endeavour of the busy medical practitioner to make the best use of the scanty hours he can devote to study are always interesting. Such we believe is the objective of the editors of the symposium now being issued by the *Medical Journal and Record* of New York. The example we have recently received[1] deals with cardiovascular diseases, and we can readily believe that it will be welcome. It contains four articles which, without in any way attempting to provide a complete survey of the modern views on diseases of the heart and blood-vessels, give useful information on four big subjects which should be valuable to every practising physician who reads them. The opening article by Dr. T. Parsons-Smith perhaps errs on the side of complexity ; his subject is bradycardia, and whilst recognising the necessity for electro-cardiography in the differential diagnosis of many of the underlying causes of this condition, we feel that he may have laid undue emphasis on the interpretation of electro-cardiograms. The omission of references from his original article diminishes its value to the specialist. The other articles include a valuable dissertation on hypertension by Dr. Ernst P. Boas, and an excellent essay by Dr. S. Neuhof on the use of quinidine in private practice. This author finds that by giving 5 grains on the first day and three 5-grain doses on the second and third days, with careful examination by the family physician, the drug can be safely used in the patient's own home. In all cases with tachycardia, a preliminary course of digitalis was given, and, in all cases, symptoms of idiosyncrasy, such as vomiting, diarrhœa, tachycardia, were carefully watched for. After the third day of quinidine, the consultant again saw the patient and the nature of further treatment was decided. Dr. Neuhof has experienced the same uncertainty of effect that has been generally recognised; but he reports no untoward results from the treatment of private patients on the lines indicated, and his article is an effective illustration of how the use of a valuable drug may be extended without danger.

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[1] Acta Chir. Scand., 1924, lvii., 193.

[1] Cardiovascular Symposium. Medical Journal and Record. New York: A. R. Elliott Publishing Company. Sept. 3rd, 1924.

RETINITIS PIGMENTOSA.

RETINITIS pigmentosa is one of those diseases the pathology of which is still a subject of keen debate. To recapitulate the main facts which any theory, to be tenable, has to explain: The disease is slowly progressive, intractable to treatment, and is liable to occur in several members of a family. Its most typical ophthalmoscopic appearance is a passage forwards into the anterior layers of the retina of cells belonging to the hexagonal pigment layer which are normally situated at the back of the retina immediately in front of the choroid—this phenomenon first becoming evident in the mid-peripheral region. A constant symptom, even in early cases, is night-blindness; and the visual field nearly always shows a ring scotoma corresponding to the ring of abnormal pigment in the mid-peripheral zone. Two antagonistic theories have been and are still held to account for these phenomena. On the one hand, the atrophy of the outer layers of the retina is supposed to be secondary to changes of a sclerosing character in the choroidal blood-vessels on which their nutrition depends. On the other hand, it is suggested that the degeneration of the retinal elements is primary and the sclerosis of the vessels of the choroid a secondary phenomenon. Treacher Collins put the case for this view five years ago in an important paper which was much criticised at the time, but which has never been satisfactorily answered.[1] In his view these cases are analogous to those degenerations of tissue due to defective vitality to which the late Sir William Gowers gave the name "abiotrophy." These diseases present characteristic features, says Collins, wherever they occur, which differentiate them as a class from other affections. These features may be summarised as follows: 1. The tissue which is affected is one that has attained mature development and which then retrogresses. 2. The condition is one which commonly involves several individuals of the same family, either members of the same childship or members of different generations. 3. The parts affected are usually bilateral and the extent of disease is limited by definite anatomical landmarks (as, for instance, in the nervous system by a certain set of neurons). 4. The changes produced are progressive so far as the anatomical limits of the tissue permit, and recovery does not take place. 5. The tissues involved are those which have attained a high degree of specialisation. In all these respects a typical case of retinitis pigmentosa appears to conform. Physiologically the pigment in the hexagonal pigment cells is possessed of the power of amœboid movement which is exercised under the stimulus of light. In the normal retina, however, a barrier is formed by the external limiting membrane through which the pigment cannot pass. Atrophy of the rods and cones causes openings in this membrane through which the pigment is free to wander. According to this view, the sclerosis of the chorio-capillaries which is so often found is not the primary affection but is secondary to the retinal atrophy, and Collins supports his argument by citing the fact that the pathological examination of the eyes from four undoubted cases of retinitis pigmentosa in different stages of the disease by independent observers, has shown that it may occur without any discoverable sclerosis of the choroidal vessels.

With regard to the particular region of the retina first affected in typical cases, the advocates of the choroidal theory connect the ring scotoma and the distribution of the pigment in the periphery with the anatomy of the ciliary arteries, the disease commencing at a part where the supply of choroidal blood is least efficient.[2] Collins finds the evidence for this view insufficient and prefers to connect the distribution of abnormal pigment and scotomata with the fact that different regions of the retina are developed at different periods of fœtal life. "It appears that the neuro-epithelium of the ultimate central area of the human retina is of later formation than that of the parts around and that of the part immediately around the central area is the first to attain its full development." It is this paracentral area that is affected first in typical cases of retinitis pigmentosa, whereas the central area which is the last to be developed is usually the last to be involved. In the interval since this theory of "abiotrophy" applied to retinitis pigmentosa was first put forward, we have had but little fresh light on the problem. Mr. M. L. Hepburn, in an article in the September issue of the *British Journal of Ophthalmology*, supports the choroidal origin of the disease, and pertinently remarks in connexion with Collins's paper that he cannot quite follow the argument that perfectly healthy pigment and pigment epithelial cells should wander away from their normal position, merely because their anatomical boundaries in front are destroyed. The subject is complicated by the fact that there are certain cases of undoubted choroiditis in which the signs and symptoms are very similar to those of typical retinitis pigmentosa. Occasionally, it is very difficult to make the distinction between the two. If the supporters of the choroidal theory are right, there is no distinction in kind but only in degree. On the other hand, if the theory of "abiotrophy" is ultimately confirmed, the resemblance is accidental.

AN AD HOC RESEARCH.

Two members of the Harmsworth family have contributed a sum of £25,000 to endow a research fund in memory of Mr. R. L. StJ. Harmsworth, who died of infective endocarditis. The object of the fund is to investigate, and, if possible, to solve, the problem of this disease; to this end the trustees of the fund will be advised by a scientific committee consisting of Sir Thomas Lewis, Sir E. Cooper Perry, Sir Thomas Horder, and Dr. Mervyn H. Gordon. In the first instance the work to be undertaken by the fund will be (1) the collation of facts as yet known concerning the disease, (2) a close study of cases at present under observation and treatment, and (3) research along any hopeful lines suggested by members of the scientific committee. Grants may be made to individual workers in this country or abroad, subsidies paid to workers whose present efforts are directed in the right direction, to others who undertake special new lines of research, and to those who contribute statistics, data, or results of private experiments. It is proposed to spend in this way the whole net income of the fund each year and to close the fund at any time by the grant of the whole of the capital to a worker adjudged (to quote the terms of the award) to have finally disposed of the present obscurity overlying our knowledge of the disease, and thus to give the profession "control" over the disease. Sir Thomas Horder, in a report to the trustees, gives an account of a typical case of infective endocarditis which is sufficiently graphic to set out here in full.

> B. J., a young man of 28 years, comes under observation because of some general malaise following a short febrile illness which was thought to be "influenza." The temperature incident upon the latter disease does not subside, but persists without any obvious reason. Careful examination reveals no signs of any pulmonary disease, and the only structural change present is a valvular defect known to have existed since an attack of rheumatic fever at the age of 18 years. This defect had caused no handicap hitherto and even now there are no signs of any disability of the heart. Prior to the "influenza" the patient considered himself quite fit, although inquiry elicits the fact that this illness was not of sudden onset but preceded by some sweating at night,

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[1] Trans. Ophthalmological Scoiety, 1919.

[2] Nettleship: Royal London Ophthalmic Hospital Reports, vol. xv., part iii., January, 1903.

a few "rheumatic" pains in the limbs, and a sense of unfitness. On one occasion, six weeks before the "influenza," there had been a sudden sharp pain in the tip of one finger lasting for an hour or two, and leaving a small patch of dusky-red discoloration, which disappeared entirely after a couple of days.

Critical examination shows that the patient's complexion is sallow and slightly anæmic, and that there is a slight but definite enlargement of the finger ends—the so-called "clubbing" of the fingers. There has been a little loss of weight. The mental state is sanguine. Already, with this clinical picture, a suspicion of infective endocarditis is strongly aroused. The blood is cultivated, but no microbes are isolated from the specimen taken. A month later, however, two other negative cultures being made in the meantime, a streptococcus is isolated from the circulation, having characters that are recognised as being commonly met with in the disease. By this time the patient's condition has deteriorated a little; the temperature has persisted without a break, though there have been periods of a few days at a time when, perhaps as the result of some treatment, the height of the fever has been much less. There have been two or three recurrences of the sudden pains in the finger ends, and once a similar event occurred in one toe. On one occasion there was a little blood in the urine, clearing away in less than a week. A few minute hæmorrhages have been noted in the skin about the neck ("petechiæ"). The anæmia is rather more marked.

Despite all efforts at treatment—an open-air life, good food, tonic measures, two or three transfusions of blood from a suitable "donor," and a trial of several different types of sera and vaccines—there is a steady and progressive decline in the patient's condition. The disease, dating this from the time when the sweats and general malaise began—the "influenza" being now regarded as merely an exacerbation of the toxic state dependent upon the infection—has by this time lasted some six months. Although the patient is still optimistic, it is obvious, even to the uninitiated, that he is a stricken man. Examination of the heart shows no great change, but the signs of the old valvular mischief are more obvious and the heart muscle is now dilated.

Two months later the kidneys show signs of failure; albumin is present in the urine and there is slight dropsy present. The petechiæ have increased considerably in number. A good deal of flesh has been lost. Further blood cultures yield the same streptococcus on every occasion, and in increasing numbers. A state of drowsiness sets in, with other evidence of kidney insufficiency, and the patient sinks into a state of uræmic coma and dies. The disease has lasted for nine months, and its anticipated course and duration have been little, if at all, influenced by treatment.

Sir Thomas Horder concludes that the disease is in effect a form of chronic septicæmia associated with a septic focus in the wall of the heart, the brunt of the attack falling now on the kidneys, now on the brain, the lungs, or the heart itself. It attacks valves damaged by rheumatic fever, less frequently by other agents, and the influence of prolonged physical and nervous strain is an important factor in inducing the condition, hence the rise in incidence following the war. Dr. Gordon contributes a pathological note on the lesions and contrasts the uniform fatality of the disease once developed in the human subject with its comparatively feeble virulence in animals. From this it appears that infective endocarditis is not so much a primary disease as a sequel to previous disease, injury, or other depressing factor. One promising line of research should be an attempt to define the degree of the patient's specific resistance to the particular micro-organism, along which preliminary work has already been done on behalf of the Medical Research Council by Dr. P. O. Ellison, Dr. G. Bourne, and Dr. P. Hamill. Another is to inquire why the disease should select for attack the valves of the heart, and a third to determine the particular factor in the specific defence that breaks down. We have the opportunity of publishing this week a study of the incidence of infective endocarditis in congenital heart disease, made at the Middlesex Hospital by Dr. H. E. A. Boldero and Dr. D. E. Bedford, in which the interesting suggestion is made that the changed composition of the blood after passing through the lungs may explain the preponderance of left-sided lesions. It is, we understand, hoped that the research fund will be considered an appropriate medium for the collection of information. The secretary of the Scientific Committee is Dr. Seymour Price, at 41, Sloane-gardens, London, S.W.1.

THE ROYAL COMMISSION ON LUNACY.

THE Royal Commission on Lunacy Law and Administration and Mental Disorder held its first sittings at Westminster this week under the chairmanship of Mr. H. P. Macmillan, K.C. Under its terms of reference, which concern England and Wales only, the Commission is (1) to inquire into the existing law and administrative machinery in connexion with the certification, detention, and care of persons who are, or are alleged to be, of unsound mind; and (2) to consider the extent to which provision is, or should be, made for the treatment without certification of persons suffering from mental disorder, and to make recommendations. At the opening session the Board of Control, represented by Sir Frederick Willis, its Chairman, Mr. S. J. Fraser Macleod, K.C., and Dr. C. H. Bond, submitted evidence as to the existing working of the Lunacy Acts. The Board is itself the legal successor of the Lunacy Commission appointed in 1845 to inquire, as the Chairman of the Commission elicited, into the persons and not the property of persons of unsound mind. Detailed figures were given which may be thus summarised. The total number of insane patients on Jan. 1st, 1924, was 130,334, distributed as follows: in county and borough mental hospitals, 103,892; in registered hospitals, 2139; in licensed houses, 2797; in naval and military hospitals, 171; in the criminal lunatic asylum at Broadmoor, 785; in ordinary Poor-law institutions, 11,323; in metropolitan district mental hospitals, 5266; in private single care, 417; and in outdoor relief, 3544. The admissions to public mental hospitals during 1922 numbered 20,367, of whom 58·5 per cent. were admitted from Poor-law institutions, 37·2 per cent. direct from their own homes, and 4·3 per cent. from other sources. On Jan. 1st, 1924, the vacant bed space in mental hospitals was sufficient only for 4754 patients, while the average yearly net increase was 3565. Hence a considerable shortage of mental hospital accommodation existed. The Board felt that better use could be made of the existing accommodation if all the workhouse and mental hospital accommodation were under the control of the visiting committees, which in any case might through their expert medical staff supervise and direct the operation of the guardians. Mr. Macleod, at the Chairman's request, outlined to the Commission the course which would be adopted if a person in the room became of unsound mind. All lunacy orders were, he said, examined by the officials of the Board, and of the 30,000 certificates presented in the course of the year, few were found to be defective. Dr. Bond remarked that when an order was returned it was because it was so worded that the Board could not ascertain whether the symptoms mentioned were observed by the doctor on his examination. At a later sitting the Board of Control gave further evidence in regard to improvements that might be effected in administration.

IN HONOUR OF DR. BRACKENBURY.

ON the eve of the Insurance Service Conference, which is due to assemble next week, a reception will be held at the Hotel Victoria, London, in order to make a presentation to Dr. Henry Britten Brackenbury, who has almost identified himself with the name and fame of the medical insurance service. In the course of a strenuous professional life, Dr. Brackenbury has found time to take more than a share in the work of the community in which he lives, and in recognition of his service to fellow practitioners he received last July the Gold Medal of Merit of the British Medical Association. As with many others, it was in municipal life that Dr. Brackenbury served his apprenticeship to public office, for he is an alderman of the Metropolitan Borough of Hornsey and has passed the chief magistrate's chair, and he has also presided over the Association of Educational Authorities. We have already quoted the testimonial paid by the chairman of the Court of Inquiry to Dr. Brackenbury's brilliant work in presenting the case of the insurance practitioner, for, he said, "we shall have to steel our hearts against being unduly influenced by his pleadings." Dr. Brackenbury has stated that he desired no better reward than the loyalty and sympathy of his colleagues—which he now possesses in full measure—but those colleagues are well aware both of the financial sacrifice he has made in serving their interest and of the weight which presses on a general practitioner who desires to provide for his own family the educational advantages which he has made possible for others. Along with the gold watch and canteen of silver, intended to be a perpetual reminder of the esteem in which he is held, a cheque for a substantial sum, approaching £6000, will be handed to him. The medical profession is happy in finding at moments of stress and emergency such men as have presided over the Insurance Acts Committee. There have been but two chairmen in the course of its history: Dr. J. A. Macdonald and Dr. Brackenbury, who is only now giving up the chairmanship of the Committee to become President-elect of the Representative Meeting.

THE FOOD INVESTIGATION BOARD.

WHEN the war-time Ministry of Food was finally demobilised, on the grounds that the necessity for its function had passed, its dissolution was looked upon with some misgiving by more than one authority on the subject. Prof. E. H. Starling, at one time scientific adviser to that Ministry of Food, was of the opinion[1] that there should be an inquiry or statistics department which should have knowledge of all food production and consumption, some organisation which could inform the Government as to the value of foods, and supply data and statistics of food consumption and distribution. The fullness of his vision has not yet become reality. Nevertheless valuable work has been done over a period of several years by the Food Investigation Board of the Department of Scientific and Industrial Research in the scientific study of food production and preservation. The Board, whose report for the year 1923–24[2] has just been published, has as its chairman-director Mr. W. B. Hardy, secretary of the Royal Society, and is composed of the following members: Sir Kenneth Anderson, Sir Joseph Broodbank, Sir Alfred Ewing, Sir Walter Fletcher, Sir Richard Threlfall, and Prof. T. B. Wood. The work of the Board is divided up among various committees, each of which deals with some particular branch of the work—namely, engineering, fish preservation, fruit and vegetables, meat preservation, oils and fats, and canned foods. During the past year the most important work carried out by the Board was an investigation into the conditions of the transport of apples from Australia to this country. In 1922 an epidemic of "brown heart"[3] was diagnosed among apples coming from Australia, and this gave rise to the sending of a small scientific expedition to Australia to study the conditions of transport. The ventilation of ships' holds was recognised as a problem of importance, and it was found that excessive ventilation, no less than inadequate ventilation, might be at fault, because the atmosphere surrounding the fruit controls the rate of ripening, and the effect is probably secondary only to that of temperature. Ripening is retarded up to a point more or less proportionately by the presence of carbon dioxide and by a subnormal concentration of oxygen. It is known that it is only in atmospheres containing too much carbon dioxide, over 10 per cent., that the disease of "brown heart" is apt to manifest itself. Starting on these lines, therefore, the whole question of ventilation in ships' holds was investigated from a wide point of view by the members of the expedition, but the special reports of the results have not yet been published. Further work has also been carried out by the Board on the general theory of the freezing of tissues. By studying the freezing of eggs it was found that the state of the yolk, at any rate, might be preserved in two ways without sensible change: either (1) by never allowing the temperature to fall below −6° C., or (2) by freezing and thawing with great rapidity. The report states that it is probable that there is some irreversible change in the nature of a coagulation which occurs at temperatures between −6° C. and an unknown lower limit, which does not occur if this critical interval is hurried over with sufficient rapidity. Laboratory researches have been continued at the Low Temperature Research Station, Cambridge, and at the Imperial College of Science and Technology in London, on such questions as the physiology of fungal infection, the effect of low temperature upon metabolism of apples and upon the parasitism of fungi, and the respiration of potatoes in relation to sugar content.

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[1] THE LANCET, 1919, i., 591.

[2] Report of the Committee of the Privy Council for Scientific and Industrial Research for the Year 1923–24. London; H. M. Stationery Office. 1924. 3s.

[3] THE LANCET, 1923, ii., 492.

VOLUNTARY HOSPITALS IN GREAT BRITAIN.

THE fifth annual report[1] of the Joint Red Cross Council on the Voluntary Hospitals in Great Britain (excluding London), which appears as we go to press, is signed by Dr. F. N. K. Menzies, Director of Hospital Services. Dr. Menzies asks for indulgence in view of his inability to take up the late Sir Napier Burnett's work until late in the year. His very notable report analyses the records of over 700 hospitals in England and Scotland with a total expenditure in 1923 of £6,381,115 and total receipts of £7,689,072. In this wonderful year the ordinary income exceeded the ordinary expenditure by over £200,000, and the extraordinary income exceeded the extraordinary expenditure by over £1,000,000. Sixty-seven per cent. of hospitals in England and 62 per cent. of hospitals in Scotland showed a surplus of ordinary income. In these hospitals 770,000 more patients were treated in 1923 than in the previous year, and Dr. Menzies thinks that the time has gone by for the voluntary hospital system to justify itself as a means of relieving sickness and suffering at little or no cost to the public purse, and that the system should boldly claim to carry out this immense volume of work more efficiently and more economically than it could be done by any other known method or system. The charitable public, he is glad to think, is becoming more and more discriminating in the selection of the voluntary institutions which it will support. For himself, he urges the provision of greater facilities for the treatment of such diseases as ophthalmia neonatorum and infantile paralysis, and he exhorts boards of management to acquaint themselves with the particular needs of the area which they serve and to consult the general practitioner as to how they may best assist him in the diagnosis and treatment of his patients. Finally, Dr. Menzies sees great scope for economy in the drug bill of the provincial hospitals of Great Britain, which in 1923 seems to have exceeded £200,000. The report, from which we have taken only one or two salient points, contains a vast amount of material for thoughtful study.

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[1] Offices of the Council, 19, Berkeley-street, London, W. 1s.

LEEDS CITY COUNCIL'S SUBSIDY TO HOSPITALS.—At a meeting of the Leeds City Council on Oct. 3rd, it was moved and carried that a grant of £10,000 be made to the Leeds General Infirmary, Leeds Public Dispensary, and the Hospital for Women and Children in consideration of an agreement being entered into by each of the committees of these hospitals with the Corporation for the reception by such institutions of the sick inhabitants within the city, the amount to be distributed amongst the hospitals in such proportions as might be decided by the Finance and Parliamentary Committee. There is no question of municipalising the hospitals. At the meeting it was stated that 65 per cent. of the employers of the city were now contributing through the employers' scheme and it appeared only right that the Corporation, as an employer, should contribute. Over 700 Leeds firms are now contributing under the employers' contribution scheme.

Modern Technique in Treatment.

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XCI.

THE TREATMENT OF POST-MENOPAUSAL HÆMORRHAGE.

BLEEDING from the genital tract after the menopause is so often a symptom of carcinoma that every case met with should be considered malignant unless proved, on careful examination, to be innocent. A heavy responsibility is thus laid on the practitioner who is consulted about such a case, and an awkward situation may arise between him and his patient. It is unjustifiable to treat such cases symptomatically by the administration of ergot or similar drugs. On the one hand, it is unlikely that these drugs will have any beneficial effect; and on the other hand, valuable time may be lost during which a malignant growth may become inoperable.

The Need for a Complete Examination.

When consulted about a case of this kind the practitioner should point out that a pelvic examination is desirable to find out exactly what is wrong; should the patient refuse, he should then state clearly that such bleeding is usually due to early cancer of the womb and that an examination is necessary to determine the point. If the refusal is persisted in, he has cleared himself from future blame and might be justified, in certain circumstances, in refusing to treat the case in ignorance of what is to be treated. The first essential then is a thorough examination to determine the cause of the bleeding.

On abdominal examination a pelvic tumour may be found, but more often is not detectable. In making a pelvic examination it is advisable first of all to examine the vulva in a good light. An unexpected epithelioma of the vulva may be seen, a urethral caruncle, or bleeding hæmorrhoids. Caruncle is not usually a cause of bleeding, but in a certain proportion of elderly patients it will be found associated with carcinoma of the cervix or corpus uteri. When examining the cervix it must be remembered that after the menopause the cervix is small and atrophic, and finally forms a depression rather than a prominence at the vaginal vault. A prominent cervix at this period would be noteworthy, especially if hard and nodular. Another part to be carefully examined is the external os. This may be patulous, and a mucous polyp may be found inside or projecting through the aperture. In other cases the os may be widely dilated, embracing a partially extruded and often degenerating fibromyomatous polypus.

The corpus uteri must now be examined, and here again size and consistency are of the first importance. A post-menopausal uterus is small, and in later life very small, so as to feel almost like a uterus on which subtotal hysterectomy has been performed. Therefore, if the uterus be bulky like an endometritic uterus in early life, and especially if it be definitely hard, the probability of carcinoma of the body is great. If the uterus be enlarged to the size of a cocoanut or more and of a wooden or stony hardness, the chances are more in favour of a fibromyoma, probably undergoing degeneration, it may be malignant degeneration. The fornices must be examined, and any tumour of the appendages carefully noted. Finally, the condition of the heart, lungs, and peripheral vessels should be investigated, and the rectum and bladder examined, the latter by cystoscope if the bleeding appears to originate there.

Lesions Which May be Found.

The various lesions to be described collectively constitute the main causes of post-menopausal bleeding.

On the vulva a patch of epithelioma may be found; pathological conditions of the vagina are rare, and epithelioma, usually extending along the anterior wall from the cervix, is the most common; at the cervix carcinoma is the most common single cause of hæmorrhage, accounting for fully 80 per cent. of all cases. It may be ulcerating or fungating, but more often it is of the atrophic variety. Mucous or fibroid polypi may also be met with here, but such cases must be explored carefully by the curette or finger, as polypi of the cervix are often associated with carcinoma of the corpus uteri. In the corpus uteri, carcinoma or sarcoma are shown by bulkiness and hardness and usually also by a certain degree of fixation; fibromyomata are usually shown by greater size and greater hardness; fibrosis uteri is shown by hardness but little or no increase in size; while in senile endometritis the uterus is only a little enlarged and soft. Carcinoma of a Fallopian tube may be associated with hæmorrhage, but it is a rare condition. Ovarian cysts which are associated with post-climacteric hæmorrhage are to be regarded with suspicion as being probably malignant. From the general point of view, cardiac lesions, chronic renal disease, and high blood pressure may be causative, but only in a very small proportion of cases. Again, in a certain number of cases the most careful examination will detect no physical abnormality anywhere, but such cases are very few.

It cannot be too strongly emphasised that the most probable cause in any individual patient is carcinoma of the cervix or corpus uteri, and this lesion must be presumed until and unless shown to be absent. These considerations will suggest the principles of treatment, which in the great majority of cases is surgical.

Surgical Treatment.

If epithelioma of the vulva or cervix, or carcinoma of the uterus be found, wide removal of the vulval condition, or total hysterectomy, as the case may be, is indicated if the condition be removable. This determination of operability is a most important point which, however, cannot be discussed here. Suffice it to say that while about 60 per cent. of cases of carcinoma of the body of the uterus, and about 30 per cent. of cases of epithelioma of the vulva are removable, it is usual for carcinoma of the cervix to be advanced beyond operation when first seen. This, which is the common experience of all gynæcologists, points the moral of making an early pelvic examination in every case complaining of post-climacteric hæmorrhage. In cases where the vulva, vagina, and cervix are normal the uterus is to be carefully explored by curette or finger. Mucous polypi of the cervix may be removed by forceps or a sharp spoon, but in such case the cervix should always be dilated and the interior of the uterus curetted. The curettings should be microscopically examined for signs of carcinoma. In cases of senile endometritis the curette removes a large amount of broken down débris, often foul, and such cases usually clear up after this operation, which may require to be repeated. In carcinoma of the corpus uteri the cervix is easily—suspiciously easily—dilated, and the material removed by the curette is characteristic. It is of a greyish colour, profuse in amount, soft, cheesy, and often accompanied by bleeding. The curette is to be used gently in order to avoid perforation of the uterus.

In chronic metritis curettage is useful for purposes of diagnosis and exclusion. The amount removed from the uterus is very small or almost nil, and in some cases the hæmorrhage will cease after curettage, but usually it persists. In these cases and also in cases of inoperable carcinoma *radium* is of the greatest value.

Radiotherapy.

In chronic metritis the dosage of radium should be small. A tube of 50 mg. of radium bromide sheathed in platinum is inserted into the cavity of the uterus and left there for eight hours. In about half the cases hæmorrhage ceases after one such application. In the other cases it is either unaffected or improved, and another application should be given after a month's interval. By this treatment quite 75 per cent. of simple hæmorrhages from the uterus can be controlled. In the cases which do not react favourably, hysterectomy is the only choice left open. In inoperable carcinoma or sarcoma of the body of the uterus 100 to 120 mg. should be introduced into the uterine cavity for 24 hours. The effect of this is usually most beneficial and the hæmorrhage ceases, the discharge disappears, and the patient's general condition improves. Should the bleeding recur, the treatment can be repeated; again, the local conditions may so improve that a patient at first considered inoperable can later be operated on with safety. In inoperable carcinoma of the cervix it is a matter of personal opinion as to whether any fungating or ulcerating condition should be curetted before radium is applied. The cervix should be steadied with a volsellum, if it is possible to catch it without tearing, and two tubes of 50 mg. of radium each are introduced into the cervical canal. Several other smaller tubes are inserted into the peripheral parts of the growth, giving a dose of 170 mg. in all, which should be left in for 24 hours. The effect of this is usually most satisfactory, the bleeding and discharge ceasing within a week or two, and the local condition usually healing up almost beyond recognition. Such patients have to be watched from time to time, and it is well to repeat the application after four weeks. In vulval epithelioma the results of radium therapy are disappointing.

Fibromyomata of the uterus should be removed by appropriate means. This usually involves hysterectomy, but a pedunculated polyp may be removed per vaginam by avulsion or cutting with scissors or, if the condition be larger and degenerating, by morcellement. If sloughing and pedunculated, laparotomy is to be avoided if at all possible on account of the grave risk of peritonitis. In some cases vaginal hysterectomy is indicated, but the abdominal route is more often chosen to-day. Ovariotomy or salpingo-oöphorectomy is called for where an ovarian cyst or tubal disease is present, and in these cases it is better to remove the uterus at the same time. A urethral caruncle can be removed most easily by the actual cautery at a dull red heat and using a fine point. With the patient in the lithotomy position the caruncle is gently pulled on with forceps and the cautery point passed through the urethral mucosa at its base. If general anæsthesia be undesirable, local infiltration with novocaine and adrenalin does very well.

Drugs do not require discussion, because in bleeding of the type under consideration ergot, pituitrin, adrenalin, and such preparations are generally found to be of no value, as would, indeed, be judged probable from a consideration of the causes of the bleeding. Almost always the bleeding has a local cause and requires local treatment.

Conclusion.

It will be evident from what has been said that post-menopausal hæmorrhage as a rule indicates a serious, and it may be a fatal, condition. Treatment is usually operative and may involve a major operation, and it is on that account that a thorough pelvic examination should be made as soon as possible, in order that appropriate treatment may be instituted at a time when it may benefit the patient.

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Messrs. William Hodge and Co., Ltd., announce for early publication two further volumes in the Notable British Trials series. The first will deal with the well-known case of Adolf Beck and is edited by Mr. Eric Watson. The second will deal with Henry Fauntleroy, the banker, who was tried for forgery and executed in 1824, and is edited by Mr. Horace Bleackley.

Special Articles.

THE WORKING OF THE INSURANCE MEDICAL SERVICE.

WITH the end of 1923 the Insurance Medical Service completed the eleventh year of its existence. In the annual report[1] Sir George Newman states, and with some justification, that the inception of this service in 1913 was one of the most important events in the history of British public health progress, for which the establishment of the insurance doctor the State assumed large responsibilities for the medical treatment of practically the whole of the wage-earners of the country. The Insurance Medical Service follows closely the lines of private general practice. State control and State interference are reduced to the minimum that is compatible with due recognition of public responsibility, and one of the chief aims of the service is to preserve that intimate relation of doctor and patient which finds expression in the phrase "the family doctor." It has been made a reproach against the Insurance Medical Service that it provides nothing more than the services of general practitioners. It is true that the service would work with much greater effect if coördinated with a comprehensive scheme of consultant services. Such a scheme was devised in 1914, and the necessary funds were voted by Parliament; but the project foundered in the great catastrophe of the war.

General Work of the Medical Practitioner.

There is danger that the value of the general practitioners' work may be overlooked. Though it avoids publicity, and meets with scant public recognition, its public importance and utility are immense. The general practitioner forms our first line of attack in the fight against disease and premature death. His skill must be the sieve that distinguishes the important from the unimportant, and if he is worthily to play his part it is essential that he should be familiar with the beginnings of disease, for it is in its beginnings that disease can be most successfully controlled. Early recognition is equally important from the point of view of the patient. It would be too much to expect the general practitioner to make a confident diagnosis in every case; but he will, if ordinarily well-equipped, be able to select those cases in which he should seek specially skilled assistance to enable him to arrive at a right view of the case. To this end it is essential that the general practitioner should be closely in touch with the workers in his area who are engaged in other fields of medical work. There are many and various agencies, both voluntary and State-aided, for the control of disease, and they would all work with greatly enhanced effect if coördinated as parts of a complete scheme of medical services. The precise reciprocal relation of each agency to the others needs to be carefully thought out, clearly defined, and brought into effective operation. The framing of such a scheme is a matter of considerable difficulty, but Sir George Newman says it has long been overdue, and the benefit to the country of the establishment of such a comprehensive coördinated system would be immense. The expenditure of labour and money which each of the various health agencies already puts forth year by year is, it is true, enormous; but for lack of proper coördination the highest possible return for such expenditure is not attained.

Particular Work of the Insurance Practitioner.

As a general practitioner, the insurance doctor has the important advantage that, through the absence of any financial deterrent, his insured patients consult him earlier and more frequently than do his private patients. Medical attendances shown by the record cards to be given to insured persons are about three times as numerous as those stated in the Plender report to have been given in private practice per head of the population. The general practitioner has, therefore, much greater opportunities in insurance practice than in private practice of seeing those illnesses, trivial perhaps at initiation, which constitute the beginnings of serious disease, and is also more favourably placed for close observation of the course of an illness in an insured patient than in most private patients. His special relation to the State involves also the fulfilment of functions of peculiar importance to the community, three of which are thus briefly set out in the report:—

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[1] On the State of the Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1923. 3s.

1. *Incapacity Certification.*—Not only have insurance doctors to secure the speediest possible termination of the wage-earners' sickness, but they have also the important duty of determining whether their patients are, or are not, incapable of work, and of giving, or refusing, medical certificates of incapacity in accordance with their opinion in each case. Every year in England and Wales over 11 million pounds are expended in sickness and disablement benefit to insured persons who are incapable of work, and in nearly every case the chief evidence, in many cases practically the only evidence, of incapacity is the certificate of the insurance doctor. It is doubtful whether the importance of this side of the insurance doctor's work is sufficiently appreciated. Its difficulties are great, for the question whether a patient is incapable of work is not one that can be determined by the routine application of general rules.

2. *Advancement of Medical Knowledge.* — The incapacity certificates of the insurance practitioners afford an immense mass of statistical material relating to those insured persons whose sickness has reached the point of causing incapacity for work; and in the medical records kept by insurance practitioners, in respect of the illnesses of all patients attended by them, whether incapacitated or not, there is a greater mass of material available for statistical examination, adding to our knowledge of the incidence of disease and its results. Further, the insurance doctor, in addition to furnishing the data so far mentioned, which emerge in the routine course of his daily work, is exceptionally well placed for participating in special inquiries into various problems of disease prevalence, of which the recent inquiry of the Rheumatism Committee of the Ministry is an instructive example. The report of the Committee is largely based on observations on their insured patients made by 49 insurance practitioners working in coöperation with medical officers of the Ministry.[2] The number of insured persons on each practitioner's list being known, the total population at risk was estimated with sufficient accuracy; and thus it was possible to obtain information of the incidence of rheumatism on a population of 90,000 persons, which was regarded as a sufficiently large and varied group to form a reasonable sample of the total insured persons in England and Wales. The report of this inquiry clearly shows the opportunities opened up to the insurance practitioner in elucidating some of the most baffling of the problems of disease.

3. *Public Education in Hygiene.*—The special relation of the insurance practitioner to his insured patients is of exceptional importance, as affording him opportunity as an educator in health. The obstacle of the fee is not interposed between the insured person and the doctor of his choice. The insured patient can consult his doctor at the first onset of disquieting symptoms. The deterrent effect of the doctor's bill does not exist for him; and his doctor is not a stranger, but an adviser, who is freely chosen by him, and may have attended him for years. Hence the insured person goes to his doctor early and often. Many of his patients are young, for employed persons come into insurance at 16 years of age, and the insurance doctor, going as he does freely into the homes of his patients, and knowing their home conditions, is well able to advise on the healthy ordering of the home, the formation of healthy personal habits, hygienic diets, suitable occupations, and other measures tending to "keep the doctor away." It is on such activities, says Sir George Newman, rather than on the prescribing of innumerable bottles of medicine that we must base our hopes for further progress towards the realisation of our health ideals.

The Work of the Year.

With regard to the actual work carried out under the Insurance Medical Service during the year 1923, the following statements of particulars will be of interest. Though it will be understood that the value of the service cannot be expressed in terms of statistics, some idea of the magnitude of its work may be formed from these facts and figures.

Insured persons can obtain medical treatment under the provisions of the Insurance Acts by one of three methods. (i.) By far the most usual method is for the insured person to place himself under the medical care of a practitioner who has accepted the conditions of the insurance service and whose name is included in the Medical List of such practitioners prepared by the insurance committee of the area. (ii.) He may elect to obtain treatment from a medical aid institution existing at the time of the passing of the National Insurance Act, 1911, which has been approved by the Insurance Committee and the Insurance Commissioners under Section 15 (4) of that Act; or (iii.) he may with the consent of the local insurance committee make his own arrangements for medical attendance, receiving from the committee a contribution towards the cost of such treatment.

The following table shows to what extent these various methods are selected by the insured population. In 1923 the number of insured persons entitled to medical benefit under the Insurance Acts was (approximately) in England 12,487,000, and in Wales 833,000, making a total of 13,320,000. The approximate number of insured persons who had elected to obtain treatment by each of the methods described is given below:—

—	No. of insured persons.		
	On lists of insurance practitioners.	On lists of approved institutions.	Making their own arrangements.
England	12,000,000	130,000	29,000
Wales	749,000	31,000	7,500
Total ..	12,749,000	161,000	36,500

The number of insurance practitioners in 1923 was in England 12,000, and in Wales 855, a total of 12,855. The average number of insured persons on a doctor's list was 992.

Some Misconceptions.—It may be useful in this connexion to mention two rather widely-spread misconceptions of the work of the Insurance Medical Service. One is that there is a great number of insurance doctors with excessively large and unwieldy lists. The fact is that only 2·1 per cent. of the doctors have a list of over 3000 persons, and in no such case does the doctor work single-handed. The total number of doctors having 2000 or more insured persons on their respective lists is under 14 per cent. of the total number of insurance doctors, and many of these employ assistants. Under the old regulations the maximum number of insured persons on the list of a doctor working without a partner or assistant was 3000, and this maximum has been reduced to 2500 by the regulations that came into operation on Jan. 1st, 1924; and in any area this maximum may be still further reduced by the Insurance Committee in agreement with the Panel Committee. More than one-half of the insurance practitioners have less than 1000 persons per doctor's list.

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[2] Reports on Public Health and Medical Subjects, No. 23, The Incidence of Rheumatic Diseases, 1924.

Another misconception is prevalent as to the amount of work falling upon a doctor with a list of a given size. On this point valuable information was collected in an examination made of the medical records of a large number of representative practices by the Regional Medical Staff in the summer of 1923. The records of the practices showed that the visits and attendances made during 1922, due allowance being made in respect of persons who died or lapsed from insurance during the year, were equivalent to 3·5 per person on a doctor's list, whether well or sick; and thus a doctor having 2000 persons on his list would, assuming 300 working days in the year, make on an average about 7000 visits and surgery attendances during the year, or about 8 visits and 16 attendances per working day.

Arrangements with Chemists.—Insured persons normally obtain their medicines and appliances from chemists on a doctor's prescription, but in country areas where no chemist is available the doctor on whose list the insured person's name is placed supplies medicines and appliances. The insured person has a free choice of chemist as well as doctor. He is perfectly free to take any given prescription to any chemist whose name is on the list of insurance chemists of the area. The number of chemists' shops available for the supply of medicines and appliances to insured persons in 1923 was in England 8500, and in Wales 626, total 9126. The total number of prescriptions dispensed was, approximately, in England 36,000,000, and in Wales 2,000,000, total 38,000,000. The estimated cost of medicines and appliances supplied was, approximately, in England £1,430,000, and in Wales £86,000, total £1,516,000.

Additional Benefits of Approved Societies.—Approved societies having a disposable surplus at the first valuation, which was made as at Dec. 31st, 1918, can, besides administering the ordinary cash benefits,—namely, sickness, disablement, and maternity benefits—devote the whole or part of their disposable surplus to the provision of certain additional benefits specified in the National Health Insurance Acts. The additional benefits at present available are administered by approved societies under the general supervision of the Ministry and have no direct relation to the Insurance Medical Service, except that an insurance practitioner who has advised a patient to obtain special treatment, payment for which is made by his society as an additional benefit, is under an obligation, if so requested by the patient, to include in his next medical certificate a statement of the form of treatment so advised. Over 1000 societies and branches have adopted schemes which include what are designated "treatment benefits," these taking the form of contributions by the societies for defraying the whole or part of the cost of some form of special medical or dental treatment obtained by their members. The most popular of the "treatment benefits" is dental benefit, which may comprise the provision of dentures as well as defraying the cost of dental treatment. Other benefits take the form of payments for optical treatment and glasses, or for the supply and repair of artificial limbs or appliances, such as crutches, surgical boots, and trusses. Nearly £300,000 was available in the year 1923 for payments to hospitals or convalescent homes in respect of in-patient treatment, and some societies maintain convalescent homes of their own. The total amount actually expended in the year 1923 on the provision of additional benefits was about £500,000.

The Regional Medical Staff.

The end of the year 1923 marked the completion of the third year of the work of the Regional Medical Staff, which was initiated in the latter part of 1920. The staff, which consists at present of 31 regional medical officers and five divisional medical officers, was appointed with a dual object. First, it was desired to make available to doctors and societies alike the opinion of a medical referee in cases of doubtful incapacity for work, and also in cases of admitted incapacity in which a second medical opinion was thought likely to lead to the restoration of the patient's capacity for work. But, secondly, the view was also held, and it was a view that was soon amply confirmed by experience, that the existence in the main centres of population of a body of senior medical men of long experience in industrial practice would afford the department special opportunities for carrying out work of considerable public health importance which otherwise could not have been accomplished except at material disadvantage. The number of cases of doubtful incapacity for work referred to the staff during the year was 146,381, as against 113,685 in the previous year, an increase of 29 per cent. Of the total 146,381 cases, 144,556 were referred by approved societies, 542 by insurance committees, and 1283 by practitioners. The total number of persons referred who were examined during 1923 was 85,773, and of these, 63,402 were found to be incapable and 22,371 not incapable of work. An additional 60,261 persons referred for examination declared off the funds, or for some other reason failed to present themselves for examination. There were also 2802 "consultation" cases referred, 2344 by societies, 452 by practitioners, and 6 by insurance committees, the number examined being 1985. The total number of incapacity and consultation cases referred during the year was 149,183, and the number of cases in which an examination was made was 87,758. In addition, the staff examined at the request of the Ministry of Labour 31 pensioners in regard to whom doubt was felt whether they were fit to attend for training; and examinations were made on 432 persons claiming pensions under the Blind Persons Act, 1920, on the ground that they were so blind as to be unable to perform work for which eyesight is essential.

Several special investigations were undertaken by the staff during the year. Special inquiries were made into disease prevalence, and into various administrative questions arising in connexion with the Insurance Medical Service.

Inspection of Insurance Medical Records.—Insurance practitioners have the duty of keeping records of the illness of their insured patients. The record is a document of considerable clinical importance, since it is in a permanent form and passes from one doctor to the other with every change of doctor made by the patient. Obviously, there must be some system of supervision of the keeping of documents so important; and from the first it was clear that such supervision could best be undertaken by the regional medical officers, who, in their work as medical referees, are necessarily brought into close relation with the practitioners of each area. The number of visits made by the staff for purposes of record inspection during 1923 was 5903, and the improvement in the methods of record-keeping was found to be maintained during last year. Much useful work was done by the staff in showing how the records could best be kept in such a way as to derive full benefit from their use while observing due economy of the time of a busy practitioner. In a small number of cases the counsel of the regional medical officer failed to secure a proper standard of record-keeping, and the facts were reported to the Minister for further action.

Inspection of Dangerous Drugs Records.—Insurance practitioners who dispense medicines are subject, like all dispensing doctors, to the requirement, imposed by the regulations made under the Dangerous Drugs Acts, to keep records of their purchases and supplies of the drugs to which those Acts apply. By arrangement between the Ministry and the Home Office, such records, whether kept by insurance or non-insurance doctors, are inspected by the Regional Medical Staff, and during 1923 there were 4401 visits of inspection made for this purpose. In addition to the routine inspections some 20 visits were made at the request of the Home Office to doctors who appeared to be prescribing or dispensing the drugs for purposes other than that of medical treatment. In each case the provisions of the Acts applying to medical practitioners were fully explained to the doctor, and a special report made on the case for transmission to the Home Office. Hospitals are also required under the Acts to keep records, which are inspected by the staff, who, during the year, made 112 visits of inspection.

Sir George Newman states, however, that the value of the work of the Regional Medical Staff cannot be estimated from a mere recital of the number of inspections and examinations made annually. Its chief value, he considers, lies perhaps in its indirect influence upon the Insurance Medical Service, as the work of the practitioners cannot but be affected by the knowledge that their methods of practice come under the review of a senior colleague, who from his own experience as a general practitioner is well aware of the circumstances that make for a high standard of professional work.

NATIONAL HEALTH INSURANCE UNDER THE WELSH BOARD OF HEALTH.[3]

The conditions during the year were on the whole more favourable from the approved society point of view than in the previous year, in that unemployment, though still general, was less severe, and benefit claims were less numerous. Many societies, however, found their disablement benefit claims very heavy. Special arrangements were again made to credit members who were unemployed for prolonged periods with sufficient contributions to maintain their title to benefits.

The standard of administration in the case both of societies and of branches showed a substantial improvement. The department continued to review closely the administration of all units, particular attention being paid to cases in which the audit reports revealed weaknesses, or complaints were made by members. Furthermore, steps were taken to render assistance and guidance to all newly appointed secretaries. Evidence is not wanting that secretaries generally are more alive than formerly to the importance of keeping their records up to date, and of administering the various benefits promptly and efficiently. The adverse industrial conditions prevailing, with the consequent unemployment and distress, have also resulted in better appreciation and understanding of the provisions and requirements of the Acts generally.

Deposit Contributors.

The membership of the Deposit Contributors Fund now remains fairly constant at about 10,500. It is observed that about 5500 new accounts are opened annually, whilst about the same number of persons annually cease to be deposit contributors by reason of transfer to approved societies, lapses from insurance, emigration, death, &c.

The efforts made to bring to the notice of deposit contributors the advantages of approved society membership have been continued throughout the year. The number of effective applications received during the year for transfer to societies was 3640. It is hoped, however, Mr. Wheatley states, that the additional benefit schemes adopted by societies, consequent on valuation results, will appeal to a larger number of deposit contributors. So far there has been no marked effect in this direction, and experience has shown that the contributor, as a rule, remains somewhat indifferent to his insurance position until the question of cessation of benefit arises owing to the exhaustion of his credit. During 1923 over 500 payments of benefit ceased by reason of exhausted credits.

MEDICINE AND THE LAW.

THE CHARGE AGAINST DR. HADWEN.

THE Gloucester City Bench recently committed Dr. W. R. Hadwen for trial at the next assizes on a charge of manslaughter, arising out of the death of Nellie Burnham, 10½ years of age, the daughter of a steel presser. Dr. Hadwen had already been similarly committed on a coroner's inquisition in respect of the same death,[1] the allegation being that the child died of diphtheria, and that he was guilty of negligence in treating her. The evidence before the magistrates was mainly that of witnesses called at the inquest, with the addition of Sir William H. Willcox. Mrs. Burnham, mother of the deceased, stated that in washing the child's clothing after her death she found in the bath "a piece of substance like chewed tissue-paper," yellow and similar to the substance she had seen in the throat of her child. She admitted not having told the coroner of this, as it had "slipped her memory" when in the witness-box, and it was not until she heard the medical witnesses at the inquest giving evidence as to the membrane that she realised it was something important, otherwise "she would have spoken about it at the time." Dr. E. S. Ellis, who was called in before the child died and refused to give a certificate, as he had not "attended her in her last illness," repeated his evidence and was cross-examined as to a correspondence which he had had with Dr. Hadwen arising out of the recent epidemic of small-pox. Dr. Ellis admitted having at that time resented an attack made by Dr. Hadwen upon the medical profession in an advertisement inserted by him in a local newspaper. He said, however, that an arrangement had been made with regard to this controversy, that he was a member of committees with Dr. Hadwen, and though he was not on speaking terms with him at the time referred to in his evidence, Dr. Ellis denied that he had "any animus whatever" against Dr. Hadwen. Sir William Willcox gave expert evidence as to the symptoms of diphtheria and its detection, particularly with regard to the desirability of taking a swab. With reference to Dr. Hadwen's treatment of the deceased, he said that it was not proper treatment, that he did not think that if Dr. Hadwen had made a careful examination he could have failed to notice symptoms indicating diphtheria "unmistakably." In reply to a question, he answered: "I think if proper treatment had been given the first day there is reasonable probability that the child's life would have been saved."

An interesting question of the limits and admissibility of expert evidence arose when Sir William Willcox was asked by Mr. St. John Micklethwait, counsel for the prosecution, whether the patient's death was caused or accelerated by Dr. Hadwen's failure. Mr. A. F. Clements, for Dr. Hadwen, objected to this as tantamount to asking whether Dr. Hadwen had committed manslaughter. The magistrates held that the witness as an expert was entitled to express an opinion as asked, and Sir William Willcox answered: "In my opinion, in all reasonable probability it was." As to the possibility of the child having contracted pneumonia by going downstairs to get water, he was of opinion that it was possible but extremely unlikely. Sir William Willcox had no doubt that the case was one of diphtheria, and added that even if Dr. Hadwen doubted it, there was no justification for his not taking a swab. After counsel had submitted that there was no case on which a jury could convict of manslaughter, the magistrates retired to consult, and on their return to court announced their decision as stated above.

QUERY DRUNK.

Mr. H. W. Wilberforce, at Marylebone police-court, recently sentenced to 21 days' imprisonment T. F. Goode, a mechanic, and suspended his licence for six months, on a charge of being drunk while driving a motor van. The man had admitted having had two glasses of beer and some whisky, and Dr. C. J. R. McFadden, who gave evidence in his capacity of police surgeon, certified that Goode was suffering from the effects of alcohol when he saw him, and said that he was not sober, and was not fit to be in charge of a vehicle. This did not satisfy the magistrate, who pressed the medical witness to say definitely whether the man was, or was not, "drunk." To this he received the reply that the question put in this way was a very difficult one to answer. "He was in a certain degree drunk," said the witness. On this the magistrate accused Dr. McFadden of trying to "wriggle out" of giving a definite answer to the question, and obtained finally the reply that Goode was "suffering from drunkenness." "Well, he was drunk," said Mr. Wilberforce, and inflicted penalties as above stated, after making the further comment that medical men preferred to make their own definitions and resented the attempts of other people to get answers in a form which they (the doctors) did not approve.

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[3] From the Fifth Annual Report of the Ministry of Health, 1923–24. London: H.M. Stationery Office. 5*s.*

[1] THE LANCET, Sept. 20th, p. 626.

In comment it is to be observed that a medical witness endeavouring to express himself with accuracy and without any unfairness to the accused person cannot justly be described as "wriggling" because he prefers to say that a man is suffering from the effects of alcohol and unfit to drive a motor car, rather than to describe him baldly as "drunk." And it is of interest to all medical men liable to be called on such occasions to know exactly what the law expects of them. This is not very easy to state, if Mr. Wilberforce and any other magistrate who agrees with him are right. "Drunk" is a more or less popular term of an elastic nature. Murray's English dictionary defines as drunk a man "that has drunk intoxicating liquor to an extent that affects steady self-control; intoxicated, inebriated, overcome by alcoholic liquor." To this is added, "the degree of inebriation is expressed by various adjectives and adverbs, as 'beastly,' 'blind,' 'dead,' 'half,' &c." Later on the same authority quotes from Swift an eloquent but not very definite illustration of more or less extreme intoxication. "He came to us as drunk as David's sow." "Drunk" is not a medical term, and it is submitted that in the case of motorists it is the function of the magistrate to find as a fact whether the accused person was drunk when in charge of a motor car, that is to say, too much under the influence of alcohol for it to be safe for him to drive it, and that the magistrate in so doing has to base his finding on the evidence of witnesses, of whom the doctor can only depose to, and draw inferences from, the man's condition when he saw him, this being in most cases some little time after arrest by the police.

The essential point in cases such as the above would appear to be whether the man was unfitted by liquor for driving a motor car on a highway with reasonable care for the safety of others, and with the capacity to arrive quickly and accurately at correct decisions in the emergencies inseparable from such a task. The definition of drunkenness as a condition affecting steady self-control appears to cover this very fairly, but the general application of the term "drunk" goes rather further, and a witness may wish to know how the word is interpreted by the questioner in the circumstances in which the question is put. The popular conception of "drunk" comes nearer to "overcome by alcoholic liquor" or "as drunk as David's sow," and probably Dr. McFadden had this in view when Mr. Wilberforce thought that he "wriggled" in the witness-box.

YORKSHIRE TUBERCULOSIS SOCIETY.—On Saturday, Oct. 25th, at 4 P.M., at the Tuberculosis Dispensary, Queen's-road, Sheffield, Mr. Morriston Davies will lecture, with lantern illustrations, to the Society on Surgery in the Treatment of Pulmonary uberculosis. All medical practitioners are welcome.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

POST-GRADUATE COURSE.

THE week-end post-graduate course at St. Mary's Hospital was established two years ago, and the 11 meetings held from Oct. 4th to 6th proved as popular to medical men and women as those of the preceding years. The attendances at each lecture and demonstration numbered from 80 to 150.

On Oct. 4th the first lecture was delivered by Mr. T. G. Stevens, the subject being

Chronic Metritis and Allied Disorders.

Mr. Stevens said that chronic metritis or, as it was formerly called, fibrosis uteri, was the name given to a condition of hypertrophy of the uterine muscle and connective tissue associated with an elastic tissue replacement of the muscle coats of the branches of the uterine artery. In 95 per cent. of the cases the condition was the result of pregnancy and subinvolution, quite frequently only one pregnancy having occurred. Pregnancy was invariably attended by an increase in the elastic tissue in the arterial coats, but when subinvolution occurred the increase of elastic tissue was enormous and very largely replaced the muscle coats, so that the blood-vessels no longer were able to contract and control the amount of blood flowing through them. The very great thickness of the uterine wall which was found invariably in chronic metritis was due partly to a persistence of the increased muscle and fibrous hypertrophy of pregnancy, but much more to an actual post-puerperal hypertrophy of these tissues. Formerly it was thought that this increased thickness was due to fibrous tissue overgrowth only; this was now known to be erroneous, as the fibrous and muscular tissue occurred in chronic metritis in their usual relative proportions. The cause of this hypertrophy was probably the result of the loss of control in the uterine arteries owing to their degenerate walls. When the vessels could no longer control the circulation the uterine muscle, by its contractile efforts, attempted to keep up this control, and in these unusual efforts gradually hypertrophied. Circulatory control was moderately good for a time, but as there was a limit beyond which hypertrophy could not go, after a time the circulatory control broke down. The result was chronic over-filling of the distensible uterine vessels and subsequent excessive hæmorrhage at menstruation. This blood loss was not only excessive, but prolonged, often lasting many weeks, the normal mechanism by which menstrual hæmorrhage was stopped being feeble or in abeyance. Chronic metritis only caused excessive *menstrual* loss; once the menopause had occurred, chronic metritis never caused hæmorrhage and ceased to be of any importance. Usually the menorrhagia of chronic metritis began after the age of 40, or even later as the time of the menopause approached. In a minor degree, however, this symptom might occur in younger women. Chronic metritis was one of the common affections causing prolonged hæmorrhage at or about the menopause, and consequently must be diagnosed from carcinoma of the cervix, carcinoma of the body of the uterus, submucous fibroids, fibroid polypi, mucous polypi, &c. Apart from cancer of the cervix and obvious polypi, the diagnosis could not be made except by dilatation and exploratory curettage of the uterus, especially to exclude carcinoma of the body of the uterus. As the endometrium was usually not thickened in the subinvolution type of chronic metritis, the curette brought away practically nothing, whereas in the so-called endometritis gelatinous strips of thickened mucosa were removed, and in carcinoma cheesy masses were obtained. Once the diagnosis of chronic metritis was made the choice of treatment lay between radium, X rays, and hysterectomy. Radium applied *inside* the uterus after dilatation would usually bring about a cessation of menstruation and consequently cure the one important symptom, but it left an unhealthy organ, and time alone would show whether there was any increased liability to carcinoma in a uterus thus treated. X rays would bring about the same result, but the treatment was more irksome than a single radium application. Hysterectomy was the ideal treatment as it removed the unhealthy organ, and was especially indicated in cases where chronic metritis was complicated by old lacerations and hypertrophy of the cervix. Hysterectomy carried out by the vaginal route for chronic metritis was an extremely satisfactory operation, attended by few of the discomforts of an abdominal operation and by a mortality which was smaller than that of abdominal hysterectomy was ever likely to be.

Sir William Willcox then gave a discourse on the

Toxic Factor in Disease.

He said that the paramount importance of toxæmia in diseases where the organism causing the disease was known would not be disputed. For example, in the septicæmias of streptococcal or staphylococcal origin, in the typhoid group of diseases, in pneumonia, &c., the causal organism could be readily isolated from the blood and undoubtedly produced the toxic effects present. Other examples were diphtheria, tuberculosis, and the protozoal diseases such as malaria and including syphilis. A large number of diseases were met with in medical practice the exact causation of which was less clearly known. These diseases formed the bulk of the "common ailments." The evidence of recent medical research pointed most strongly to a toxic factor as being the chief, if not the sole, cause of many of these diseases. For example, the various manifestations of fibrositis in which should be included the different types of arthritis, the various forms of perineuritis such as sciatica, brachial neuritis, &c., inflammatory conditions of aponeuroses (muscular rheumatism), tendons, and ligaments were due undoubtedly to a toxic cause. The toxic factor in disease, he said, was probably more appreciated in this country than in any other, and this was largely due to the work of Sir Almroth Wright and his co-workers.

In discussing the cause of the toxæmia, the lecturer said that in most cases a local focus of infection could be found, and the great importance of searching for it could not be too strongly urged. The teeth should be examined clinically and also by means of X rays. Often apical periodontal disease was present when to the naked eye the teeth appeared healthy. The tonsils, naso-pharynx, antra, and accessory sinuses should be submitted to expert examination and if necessary to radiographic examinations. The colon should be submitted to a bacterial examination of its washings, and the urine bacteriologically examined. The treatment of the disease should commence with the treatment of the local focus of infection, and where possible, as in the case of infected teeth, tonsils, or antra, this should be dealt with by surgical measures. Vaccine therapy was only of value when the local focus of infection had been eradicated or adequately treated. Secondary infections from an original primary focus must always be borne in mind. For example, arthritis might result from dental sepsis or infected tonsils, and unless these primary foci were dealt with early, a secondary infection of the colon was very likely to occur. A secondary infection rendered the treatment of the toxic factor more difficult.

Sensitisation to idiopathic protein poisons was well known, as, for example, the susceptibility of certain persons to minute doses of pollen protein in hay fever. There appeared to be little doubt but that sensitisation to a bacterial poison was the cause of certain common diseases. For example, asthma might be caused by bacterial infections of the naso-pharynx or respiratory tract. Gout in some cases was caused by the bacterial infection arising from teeth or bowel. In cases where the disease was due to sensitisation to a bacterial poison, it was of prime importance that any focus of infection should be dealt with, and if this could be removed or adequately treated improvement was sure to follow. Vaccine treatment in cases of sensitisation was often contra-indicated, and if used only very minute doses should be cautiously given. In the examination and treatment of diseases the exact cause of which was unknown, it was certain that a toxic factor could in most cases be looked for with great hope of success, and when found the line of successful treatment was clearly indicated.

Colonic Toxæmia and its Medical Treatment.

Dr. REGINALD MILLER defined colonic toxæmia as a condition of ill-health arising from the absorption of poison from the lower bowel in persons who showed no gross intestinal disease. He regarded the term "intestinal stasis" for this disorder as an unhappy one in that stasis might exist without toxæmia and toxæmia without stasis. No merely mechanical explanation was satisfactory, and the essential factor to be considered was the state of the bowel wall. Where the colon remained healthy no absorption occurred, but where the wall of the colon became inflamed its impermeability was lost and ill-health resulted. The catarrh of the colon in some cases resulted from an acute infection or food-poisoning, but in the majority of cases it was set up by prolonged constipation. In these it was probable that fæcal decomposition occurred, producing irritant poisons which inflamed the wall of the colon. The symptoms of the complaint were numerous and often overshadowed by the general picture of neurasthenia. The symptoms of colonic discomfort had to be carefully appreciated and their characteristics were described. The stools were usually either hard and constipated or liquid and foul. They did not always contain obvious mucus until the bowel was washed out. Gastric symptoms might be superadded. Very little help was obtained from bacteriology; the most frequent alteration was a diminution in the numbers of *B. coli* and an increase in streptococci. There was no evidence in the majority of cases of an infection being at work. In addition to the abdominal symptoms there was a rather characteristic fatigue, physical and mental, associated with headaches, nervous symptoms, muscular pains, especially "lumbago."

The chief factor in the treatment of all but the mildest cases was by means of Plombières douches for the colon. It was, unfortunately, not true that anyone could give this treatment correctly, nor was it easy to give it at home or even in nursing homes. The secret of it was the high and even pressure with which the Plombières water was introduced. A course of 8 or 12 treatments was generally necessary, but improvement was usually quickly observed. The question of aperients was a difficult one, but a great step forward had been taken since the introduction of preparations of bile, such as "Taxol" tablets. These did not produce any irritation of the colon, and the stool resulting from their use was formed instead of the more toxic liquid variety. The use of small injections of cold olive oil was most valuable in cases of great tenderness or severe constipation. Diet and rest had also to be considered.

Dr. A. Hope Gosse spoke on

Common Cardiac Irregularities.

He said that while graphic methods had made the diagnosis of cardiac irregularities more exact, these methods could frequently be omitted without sacrifice to the precision of diagnosis. He then dealt in some detail with various types of irregularity. *Sinus arrhythmia* was the youthful type of irregularity and tended to disappear in adults. The pulse-rate was slow and the rhythm faster with inspiration, slowing down with expiration; while the breath was held the rhythm was regular. This condition was observed during convalescence after acute infections when the pulse was slow. *Premature contractions* represented the commonest type of irregularity in adults, and might be called the adult type of irregularity. The rhythm varied from minute to minute, hour to hour, and day to day. Irregular beat occurred: (*a*) every alternate beat, (*b*) every fourth or eighth beat, (*c*) as an isolated beat, (*d*) with varying frequency. Premature contractions increased in frequency with increasing age. With the finger one might detect a small beat at the wrist or there was an apparent pause, while with the stethoscope the first and second sounds of premature beat were heard at the apex. Exercise diminished the irregularity by quickening the pulse-rate. The condition was attributable to errors of digestion, excess of tobacco or alcohol, or toxic causes, and its presence or absence in a patient did not affect prognosis. *Auricular fibrillation* was the commonest form of severe heart disease. Here the pulse was continuously irregular, and exercise exaggerated the irregularity by quickening the pulse-rate. The size of the beat varied without much relation to length of the preceding pause, nor was there any relation to respiration. When the rate was very rapid many beats (even 30 or 40 per minute) were imperceptible at the wrists, but this error could be avoided by counting by auscultation. If mitral stenosis was also present the murmur at the apex was diastolic in time. The heart was increased in size. The modes of onset of auricular fibrillation were as follows: (*a*) premature contractions might precede; (*b*) a single paroxysm followed by years of regular rhythm; (*c*) frequent paroxysms and of varying duration; (*d*) auricular flutter might precede; (*e*) first attack might persist for life. The prognosis depended on the response to effort, on the size of the heart, presence or absence of valvular disease, on pulse-rate, and on the amount of digitalis required to control the rate. Treatment consisted in rest and quinidine in the early stages, followed by rest and digitalis in the later stages. *Auricular flutter* was much less common than fibrillation and comparatively unstable. In this condition the normal rhythm returned or fibrillation developed. The auricular rate was about 320 per minute with a ventricular rate half or a quarter of this. When the patient is recumbent the raising of one limb might double the ventricular rate. There was no respiratory variation in rhythm, and the rate never gradually slowed down. Digitalis frequently changed this rhythm into fibrillation and later to a normal rhythm. The treatment was similar to that for fibrillation. *Heart-block* could be divided into three degrees: (*a*) delayed conductivity, (*b*) with dropped beats, (*c*) complete. All degrees were met with in the acute and chronic form. The degree (*a*) could only be recognised clinically by a mid-diastolic murmur at apex due to mitral stenosis, while the degree (*b*) could be recognised by a pause in the pulse at the wrist and a pause, equal to two beats, in the sounds at the apex. Pyrexia might be present. The degree (*c*) could be recognised by the very slow ventricular rate—less than 35 beats per minute. The chief symptoms of heart-block occurred when a partial block changed to a complete block. When ventricle paused for: (*a*) six seconds there was syncope; (*b*) 12 seconds, twitchings; (*c*) 18 seconds, convulsions. Treatment consisted in administering pot. iod. in full doses, both in syphilitic and other forms, while atropine diminished the number of "fits" when these were frequent. The prognosis was good if the condition was acute; if chronic the patient might have several years of useful life. *Pulsus alternans* was a condition in which there were alternately large and small beats equally spaced, but the finger often not sufficiently sensitive to detect it. Alternation was more obvious after premature contraction and the patient was of arterio-sclerotic age. The outstanding symptom was dyspnœa. The heart was enlarged, and albumin was present sooner or later. Angina only rarely occurred. The prognosis was very grave; it was extremely rare for a patient to survive two years. Treatment consisted in rest and digitalis, but intolerance was often present. Dr. Gosse said that the study of the arrhythmias was of increasing interest with increasing experience, and in no other branch of medicine was diagnosis more exact than in that of the irregular pulse. Some typical electrocardiograms, to illustrate the lecturer's points, were shown.

(*To be concluded.*)

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

An Unknown Disease Among Fishermen.

A PECULIAR epidemic has broken out among the fishermen of the Kurisches Haff, a bay in Eastern Prussia. The disease begins with symptoms of general weakness and severe pains in the muscles, which overtake the fishermen during their work, and soon a rigidity of the muscles appears which renders movement impossible. The disease develops, as a rule, in the early morning when the air is misty, but sometimes also when the fishers have come home. Anglers become more frequently ill than net fishermen, and of two fishers in a boat the man who takes up the fishing line falls ill, whilst the man at the helm is not affected. Hitherto 300 cases have been notified with 3 deaths. Only fishermen and people working in the neighbourhood of the bay caught the disease; the peasants have been immune. In some places also dogs, cats, geese, and ducks have died from it. Investigations carried out in the Hygienic Institute of Königsberg University and in the Koch Institute at Berlin have produced no result. The Health Office has accordingly sent Prof. Lentz to the scene of the epidemic for special investigation. He states that a similar epidemic has never been observed, and its cause has not yet been ascertained. It is, however, very likely that the disease is not caused by parasites, but by a poison contained in the water of the bay. It is not unlikely that the agent of the disease is a gaseous poison inhaled by the fishers. Prof. Lentz is of the opinion that the symptoms bear some resemblance to poisoning by hydrides of arsenic or phosphorus, although they less frequently lead to a fatal issue. The water of the bay is indeed spoiled by the waste water from the cellulose factories of Königsberg containing concentrated sulphides of potassium. The fishermen have drawn attention to the fact that the algæ of the bay have this year flowered for the first time in many years, and that they have afterwards shown a fermentation with a pungent odour, especially in the morning hours. The fishermen, very poor people, are badly affected by the epidemic; they are afraid of sailing to the bay lest they become ill again and customers decline to buy the fish, although nobody has become ill from eating it.

Inaccurate Death Certificates.

The Statistical Office has drawn the attention of the medical profession to the fact that in the certificates of death of elderly people very frequently exhaustion, inanition, marasmus, debility, &c., are stated as cause of death. The office has reason to believe that at least a part of those deaths is due to starvation as a sequel of financial breakdown. It has been observed that medical men have used the above rather indefinite terms in cases of death by starvation out of regard for the family of the deceased; through a special inquiry into the circumstances the true cause of death was then ascertained. Certificates of death are, according to the statements of the office, sometimes inaccurate in other cases as well. Cardiac weakness, general debility, and other diagnoses of that kind ought to be avoided as much as possible and more accurate terms used. In cases of cancer, tuberculosis, and venereal diseases, not only the disease itself, but also the organ which was the seat of the disease, ought to be mentioned in the certificate. If the death is connected with pregnancy, delivery, or abortion, this fact must be mentioned. Accurate statistical records are of great importance because they enable the government to take measures of prevention and to combat certain diseases.

Treatment of General Paralysis by Recurrens Spirillum.

It has been established that treatment of general paralysis may be carried out not only by injections of malaria germs as devised by Prof. Wagner-Jauregg (some results of which I described in my letter of

Sept. 6th), but also by injections of the spirochæte of Obermeier. Before the Medical Society of Jena Dr. Bioning gave a report of the results obtained in the clinic for mental diseases of that university. In 5 out of 30 cases where injections had been performed, a complete remission had taken place, so that the patients were able to work again with, at the most, only slight psychical defects. In four cases remission was incomplete as psychical defects remained, although the patients had become able to do easy work and behaved apparently quite normally. In 8 cases no improvement was obtained, and 13 cases died. The high death-rate was not caused by the injection, as many of the patients were in an advanced stage of the disease and died from the ordinary complications of general paralysis. In 3 cases only could the treatment be regarded as the cause of death. The after-treatment consisted in injections of neosalvarsan. Cases treated in the initial stages of the disease and those showing maniacal symptoms gave the best results.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Approaching Hygienic Congress in Paris.

THE eleventh hygienic congress, organised by the Society of Public Medicine, will be opened on Oct. 21st in the large amphitheatre of the Pasteur Institute, under the presidency of the Minister of Public Instruction and of the Minister of Labour and Hygiene. The question of instruction on hygiene will be considered in full. Dr. Bequidt will deal with the teaching of hygiene in France and Dr. Léon Bernard with the problem as it is met abroad—in the primary and secondary schools, in technical colleges, in military schools, and in the various medical schools. Dr. Humbert, who is at the head of the Section of Hygiene of the League of Red Cross Societies, will describe the rôle which the Red Cross plays in different countries in imparting hygienic instruction in primary schools. Dr. Salmon will speak on the protection of public health in England, particularly with regard to child welfare and the teaching of practical hygiene (considerations which arose through the interchange of sanitary experts with Great Britain in March and April of this year). Madame Montreuil-Strauss will tackle the delicate question of the possibility of giving hygienic sexual instruction to young girls in France. Several communications, together with a report by Dr. Diénert, will be made on the purification of waste water (chemical purification, biological purification, spraying, activated sludge, &c.). The final item on the programme of the congress will be an excursion to Rheims on Oct. 24th.

Sunday Closing of Chemists' Shops.

The Prefect of Police has recently decreed the total closing of chemists' shops in the whole district covered by the department of the Seine. A roster has been drawn up to indicate the chemists' shops which, in rotation, will remain open on Sundays to deal with emergency demands. The roster will be changed every three months. Chemists whose shops are closed on Sundays will be obliged to exhibit prominently in their windows a legible placard setting forth the names and addresses of their nearest colleagues who are carrying out the emergency services on any particular Sunday. This decree has raised much protest both from the public and from the many chemists who preferred the old system, by which there existed a personal "entente" between the apothecaries in each district, whereby an adequate Sunday service was provided through mutual agreement. The Parisian Pharmaceutical Syndicate and the Syndicate of the great French chemists denounce this new system of rotation. In their opinion rotational service will not meet the many and varied needs of the Parisian populace. The system is entirely arbitrary, and is organised on an artificial basis; consequently it cannot mould itself to requirements which in one district are totally different from those in another, or even vary from the boulevard to the street round the corner. It would seem to be a dangerous expedient to compel the public, at the beginning of the winter season, to seek out far-distant chemists on a Sunday under the pretext of fairness to all.

Doctors' Social Clubs.

Medical men who reside in Paris but are not natives of the capital are fond of grouping themselves into little social clubs, according to the district of their birth. These societies exist purely to maintain friendly relations with "compatriots," and give an excellent pretext for more or less frequent banquets. Some of these societies bear such titles as the Amicale des Médecins de Bretagne, the Société des Médecins Toulousains, l'Union Médicale Franc Courtoise, and the Nord Médical, whose members all hail from the North of France, the Pas de Calais, the Somme, the Aisne, and the Ardennes. A new society, whose possibilities have hitherto been neglected, has just been called into being, and it is that of the "Médecins Parisiens de Paris." Prof. Charles Richet is the honorary president, and at the inaugural meeting he pointed out how happy and opportune was the foundation of such a society. "Does there exist a more lonely man," he said, "than the true Parisian in his native city? On every side he sees his fellows united together by the ties of their local church bells, while he has no bond of union with those who claim Paris as their mother."

Among the doctors' clubs, where the profession alone is the binding link, may be mentioned the "Orchestre Médical," which was in existence before the war, and which has lately been reorganised. Membership is extended to all medical men, their families, and to students who perform on some musical instrument. Rehearsals are held twice a month in the headquarters of the Association Générale des Etudiants, and several excellent concerts have already been given. Medical men who cultivate the arts of sculpture, painting, and engraving have also their society, which this year held its fourth successful exhibition.

Antityphoid Vaccination in the Civil Service.

The excellent results obtained in the army by antityphoid vaccination are well known, and since the war it has been observed that the immunity conferred by the vaccine has remained effective for lengthy periods. The male population of the country who were mobilised and underwent inoculation is much less affected with typhoid to-day than are the women and children. Out of 621 cases, 145 were men, compared to 476 women and children. Several public services, in particular the Administration Général de l'Assistance Publique of Paris, have already made vaccination compulsory for certain of their employees. The public, no less than the services, ought to have recourse to this vaccination, in order still further to reduce the death-rate from typhoid fever, which has declined to 0·7 per 100,000 in 1923 from 5 per 100,000 in 1918. Mr. Louis Mourier recently introduced a Bill in the Chamber of Deputies to render antityphoid vaccination compulsory to all entrants for the civil services, both local and general. It is not easy, he said, to stimulate individual interest on the question, and therefore it behoves the law to deal with the matter as far as the public services are concerned, for it is the social duty of public servants to assist in the suppression of typhoid by themselves being vaccinated. The Bill contains the two following clauses: (1) As from the date when this Bill comes into effect, every candidate for the public service of the State, of the department, or of the Commune must prove that he has been subjected to antityphoid vaccination; (2) accepted candidates cannot be exempted from vaccination without a medical certificate setting forth the reason for such exemption.

BRITISH ORTHOPÆDIC ASSOCIATION.

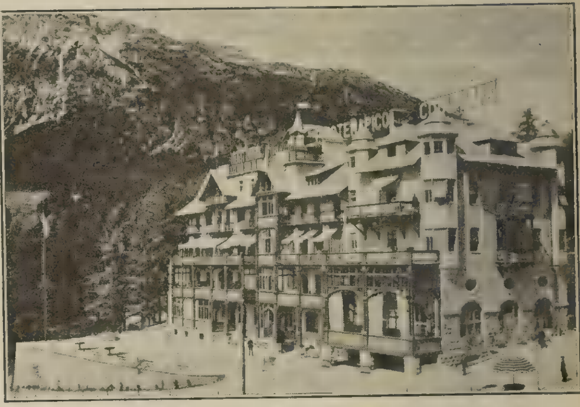
Meeting at Bologna, Italy.

Last year the British Orthopædic Association held a meeting in Holland, at the invitation of Dr. Murk Jansen at Leyden; and a joint meeting at Amsterdam in conjunction with the Dutch Orthopædic Association. The innovation thus made was so much appreciated by the members who attended that it was decided to hold another continental meeting this year. At the invitation of Prof. Victor Putti of Bologna, some 50 members and guests visited that ancient city and seat of learning on Monday, Sept. 22nd, to hold a meeting at the Rizzoli Orthopædic Institute, of which Prof. Putti is director. This institution was founded by a well-to-do and charitable citizen of Bologna, in whose memory the Via Rizzoli has been renamed, and it is housed in the splendid buildings of the old Monastery of San Michele-in-Bosco, which stand on a well-wooded hill, a short tram ride from the centre of the city. The buildings, which were erected in the sixteenth century, contain a splendid vaulted corridor of great width and height and nearly 500 feet in length, upon which some of the wards—formerly monks' cells—open. The gem of the monastery is the Aula Maggiore, now used as the library, a noble room of fine proportions decorated with beautiful frescoes. In the operating theatre Prof. Putti gave a demonstration of the reduction and plaster treatment of congenital dislocation of the hip. This deformity is extraordinarily common in northern Italy, for at this institution more than 400 cases are treated annually, while at Milan Prof. Galeazzi treats at least 500 in a year. The excessive liability of female infants to this condition is as marked in Italy as in England and other countries.

Some Members of the Party.

In the foreground, left, is Prof. Putti. Among the visitors are, reading from left to right: Miss Forester Brown, Mr. Thurstan Holland, Mr. W. Rowley Bristow (Hon. Treasurer of the Association), Mr. H. A. T. Fairbank, Prof. P. Haglund (Stockholm), Sir Robert Jones, Mr. C. Max Page, Prof. E. W. Hey Groves, Dr. Murk Jansen (Leyden), Mr. Harry Platt, Mr. Muirhead Little. Mr. R. C. Elmslie (Hon. Secretary of the Association), Mr. F. C. Pybus (in foreground), Mr. E. J. Blackett, Prof. D. P. D. Wilkie, and Prof. A. Calvé, of Berck-Plage (extreme right).

The visitors were much interested to see in the wards some quite small children, whose first plaster-of-Paris splints had been removed, exercising their own hips by means of pulleys under the supervision of nurses. This proceeding helps in the development of the acetabulum, prevents stiffness, and incidentally gives the patients some muscular exercise. Prof. Putti also exhibited a very interesting series of radiographs of congenital dislocation before and some years after reduction, in which the various degrees of development of the iliac portion of the acetabulum were well shown. After al fresco lunch in the beautiful grounds of the institute a visit was paid to the extensive workshops, in which all kinds of appliances and apparatus used in orthopædic work are made. The elaborate and ingenious table used for the treatment of fractures and dislocations was examined with much interest. Those who have seen the scamnum of Hippocrates, recently imported from Italy to the Wellcome Museum, must have reflected on the advance made on that primitive appliance, which nevertheless contained in embryo the root idea of all fracture tables. In these workshops appliances and artificial limbs are made for hospitals and practitioners in all parts of Italy. A very complete illustrated catalogue makes it easy for practitioners at a distance to select the appliances which they wish to order.



The Codivilla Heliotherapeutic Institute.

In the evening the annual dinner of the Association took place in the Hotel Baglioni, with the President, Sir Robert Jones, in the chair. More than 50 members, ladies, and guests were present.

On the second day Prof. Putti performed three typical operations—an arthroplasty of the knee by his well-known method, a tendon transfer operation for partial palsy of the foot and ankle muscles, and an open operation for congenital dislocation of the hip. Prof. Putti's skilful technique and neatness and quickness are supplemented by excellently organised team-work by his assistants. Some of his results in arthroplasty of the knee were shown by Prof. Putti at the meeting of the International Society of Surgery in London last year. The operation consists essentially of the partial resection of the joint, which should be neither too extensive nor too sparing, and the exact adjustment of the articular surfaces by means of gouges and files. The raw bony surfaces are then covered by free flaps of fascia lata, sewn into position, and the joint reconstructed by careful suture of the muscles, &c.[1] The method has been fully described in the journal *La Chirurgia degli Organi di Movimento*, but in London it was, of course, impracticable to show the actual technique on which so much of the success of the operation depends. Prof. Putti has operated on some 200 cases by his method, of which 60 were of stiff knee, and the rest of the lower jaw, the elbow, hip, fingers, and other joints.

After hearing an address on the history of the University of Bologna delivered by Prof. Putti in the beautiful old anatomical theatre of the Archiginnasio, and enjoying his hospitality at dinner, the party set out early on the next morning by train to Mestre, and thence by motor-cars through Theviso, Belluno, and the Paive Valley to Cortina d'Ampezzo in the Dolomite country, in order to inspect the Codivilla Heliotherapeutic Institute for Surgical Tuberculosis. This Institution commemorates in its name the predecessor of Putti in the directorate of the Istituto Rizzoli. Before the war it was a hotel, and has now been converted into an excellent hospital. It is situated over 4000 feet above the sea, facing due south, with high Dolomite mountains to the north and at the sides of the valley, but not so placed as to obstruct the full effect of the sun's rays. It was opened in January last with 100 beds, 50 of which are at present occupied. Patients are brought from Bologna by ordinary train and narrow-gauge railway with one change, necessary owing to the break of gauge. Here treatment as at Leysin is carried out on cases of surgical tuberculosis. In the winter bed-ridden patients are exposed to the sunshine as long as the temperature is not below +8° C. (=46° F.), while ambulant cases play about naked in the snow in temperatures as low as −10° C. (=18° below freezing point Fahrenheit). In dull weather the mercury-vapour quartz lamp is used. A careful study is being made of the local meteorology and of other conditions effecting cure. Prof. Putti pointed out as one of the problems needing solution the occurrence of cases which do well in high altitudes and badly on the sea coast, and of others of which the converse is true, although clinically no difference may be detected in the type of case.

Several interesting and memorable excursions were made by the visitors among the scenic beauties of the Dolomites.

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[1] THE LANCET, 1923, ii., 171.

SOCIETY FOR THE STUDY OF INEBRIETY.—At a meeting to be held in the rooms of the Medical Society of London, 11, Chandos-street, London, W., on Tuesday, Oct. 14th, at 4 P.M., Prof. W. E. Dixon, F.R.S., will open a discussion on Cocaine Addiction.

STREET NOISES IN MANCHESTER.—The Manchester Watch Committee have decided to issue a warning to motorcyclists to the effect that the nuisances created by the absence of or the failure to use silencers on their machines, and by opening the throttles to accelerate speed, must cease at once. In future all offenders within the Manchester boundaries are to be prosecuted. A large number of complaints have been received by the police, especially at week-ends.

MATERNAL MORTALITY.

CONFERENCE AT THE ROYAL SOCIETY OF ARTS.

A CONFERENCE organised by the Post-Certificate School, on the Means of Reducing the Maternal Mortality-rate by the Coöperation of all the Health Services, took place at the Royal Society of Arts on Oct. 6th. The chair was occupied by Dr. J. S. Fairbairn, who opened the proceedings by reading two letters, one from Mr. Wheatley, Minister of Health, the other from Sir Francis Champneys, who emphasised the importance of tracing all persons who had to do with a patient, especially as to who delivered her, and the need for cordial coöperation between all who have to deal with the patient.

Right Method in Antenatal Care.

Mr. Aleck Bourne, who opened this subject, said that need for antenatal examination and interview of every pregnant woman was agreed upon by everybody with any knowledge of modern obstetrics. When it was realised that the vast majority of all the dangers and disasters of midwifery were preventable by examination and correction during pregnancy, no further justification was required. Women themselves seldom offer any objection to being examined, in fact, they are beginning to expect it, and express surprise when it is neglected. So important is the matter of detection and elimination of possible difficulties in confinement that it is justifiable to refuse attendance or admission to a hospital of a woman who will not submit to antenatal examination. In addition to the routine examination of private patients it is essential to organise facilities on a wide scale. These may take the form of :—

(*a*) Centres or clinics established ad hoc, and run by paid part- or full-time officers.

(*b*) Establishment of an antenatal out-patients' department in all big voluntary hospitals in connexion with their in-patients' maternity wards. There would be three classes of patient : (1) those booked for admission to the wards for their forthcoming confinement ; (2) those to be attended in their own homes by the students or pupil midwives of the hospital ; (3) those referred by practitioners for an opinion in cases of suspected difficulty. This third type of patient is the one to be encouraged. It is important to try to establish the hospital clinics as consultative centres which shall gain the confidence of local practitioners and midwives. They should feel that they will have an opinion and necessary guidance from a specialist in the subject. Great care should be taken to foster the use of the hospital clinics by doctors and practising midwives by such simple courtesies as sending the patient back with an explanatory letter.

(*c*) The smaller country hospitals should similarly develop their own local antenatal clinics, meeting at a definite day and time known to all the local doctors and midwives. It is essential that these cottage hospitals clinics should be staffed by a doctor who has taken the trouble to learn the system by visits paid to a lying-in hospital and who has earned the confidence of his local colleagues by his special knowledge of obstetrics. Similarly, the urban antenatal centres should be staffed by medical officers who have had some real instruction and experience in antenatal work, and appointing bodies should demand evidence of such experience before selecting the candidate. A thorough-going antenatal organisation would ensure the examination of every pregnant woman and detection of a vast proportion of abnormalities which, while potent causes of disaster in labour, would be rendered harmless by suitable treatment or correction.

Midwives, Trained and Untrained.

Dr. J. W. Wayte underlined the importance of the trained midwife as the chief lieutenant of the general practitioner, adding that the presence of under-trained and inexperienced midwives is a source of weakness to the otherwise well-laid foundations of the services of the practitioner and the local supervising authorities. Dr. Wayte pointed out that the practitioner only books a third of the number of confinements he formerly attended in the course of the year, and in consequence the work has passed largely out of the hands of a skilled practitioner into those of the relatively less skilled practitioner—the midwife. Moreover, a great diminution of individual experience of the general practitioner is caused by two-thirds of his cases now being divided amongst a number of midwives. After paying a tribute to the excellence of the trained midwife, Dr. Wayte said that though there are times when the doctor is tempted to interfere too soon and hurry a delivery, since he has the power and ability to apply forceps, and that this may be an error of judgment, a misapplication of skill, and certainly a predisposing cause of sepsis, possibly death, as a matter of fact, nowadays the opposite state of affairs obtains and death is more often caused by interference being left too late. Perhaps the doctor is at fault, perhaps the midwife, but only too frequently it is because the two do not work together. Dr. Wayte's opinion of the ideal future method of conducting a birth is always to have both doctor and midwife available, not necessarily both present, but both available with mutual confidence. He admitted that the objection to this ideal was the general lack of money and the temptation to dispense with the services of a medical man as more midwives were available. He also predicted that in the near future, when the midwife has essentially longer training of a full year, she may ask rather larger fees. The solution offered by Dr. Wayte to the above difficulties was that local authorities should be asked to provide more beds in institutions, staffed by skilled midwives with a visiting medical staff and available for those very vital emergencies of general practice which need experience and skill. After stating that yeoman service had already been done in this direction and many maternal and infant deaths averted, Dr. Wayte concluded by saying that he would have liked to have compared and contrasted mortality in primiparæ and multiparæ—the different causes and consequences in the two states, a question which the practitioner and midwife should be technically qualified to discuss.

Rôle of the Supervising Authority.

Dr. E. F. Palgrave, speaking his personal views, outlined the rôle of the supervising authority in relation to the doctor, the midwife, the handy woman, the patient, and corporate bodies. In relation to the doctor, he said he would like to see the authority given power to pay special fees in special cases when the doctor's attendance would be given free to the patient. He emphasised the importance of friendliness and close coöperation with the midwife, and said that inspection was no good without instruction. More formal instruction was necessary and should be at the service of the midwife to keep her up to date. The L.C.C. this autumn, in addition to usual courses of lectures to midwives, are giving special courses of antenatal demonstrations in six lectures by the best teachers. In regard to the handy woman, Dr. Palgrave said that if she must be recognised as a necessity she should be under some kind of supervision and both registered and inspected, as there was no hope for improvement till she was under control. In regard to the corporate bodies (Ministry of Health, C.M.B., General Medical Council, sanitary authorities, hospitals), Dr. Palgrave suggested the formation of a round-table conference between the local authorities and the C.M.B., as he believed that by means of open discussion many deaths could be averted.

Provision by the Poor-law.

Dr. E. W. G. Masterman (St. Giles's Hospital) gave an interesting account of the provision for expectant and lying-in mothers under the Poor-law, pointing out that housing difficulties since the war have caused respectable married women to have their confinements in Poor-law institutions. Among recent developments mentioned were the admission of patients without the intervention of relieving officers, admission as "municipal council cases" of (*a*) those with deficient housing accommodation, (*b*) those needing special surgical treatment. A separate maternity home with separate entrance has been carved out of the workhouse. In Bradford 500 maternity cases are treated annually. In London area the North Middlesex Hospital caters for Tottenham, Enfield, Edmonton, and Hornsey. There are similar arrangements at Willesden and a scheme nearly ready at Hampstead. Dr. Masterman also spoke of the instruction now given to candidates for the C.M.B. among trained nurses, no less than 200 qualified nurses being yearly prepared in infirmaries in and around London. In St. Giles's Hospital eight candidates will be trained yearly, and at several Poor-law hospitals post-graduate lectures are organised by the London County Council.

The View of the General Public.

Mrs. Bruce Richmond, speaking on behalf of the public, said that the fact that more women died in childbirth in England than in Italy or other countries touched the Briton on a tender spot. Discussing different points in Dame Campbell's report, Mrs. Richmond laid stress on the different standard of aseptic care and personal clearliness shown by attendants at a confinement, and thought that the doctor should be made responsible for any infringement of rules as much as the midwife. In considering antenatal care, she thought that blame for the trouble following this omission should be attached to the doctor or midwife, and that there should be a standard of efficiency at antenatal clinics to obviate variety in the value of advice given. The difficulty of obtaining antenatal care in scattered districts could only be solved by midwives attending normal cases with adequate medical advice available when needed. Mrs. Richmond strongly deprecated the employment of so dangerous a person as the "handy. woman" and advocated her elimination, as well as that of the unqualified man practising midwifery, by an alteration in the Midwives Act. In order to attract better educated women to a profession, admittedly both strenuous and badly paid, Mrs. Richmond advised their being treated more as other professional women are treated, and given the honoured place they deserve. Public health authorities should show themselves more sympathetic towards midwives and never require them to disinfect at common cleansing stations or institute other rules than those of the Central Midwives Board, as no intelligent well-educated woman can keep herself up to date if her local authority dictates her working method. Mrs. Richmond also advised a reorganisation of health services to prevent overlapping. The midwife will, with additional training, be qualified to do her own health visiting with greater possibilities of influence gained by uniformity of advice. Where Dame Campbell urged available maternity beds for the poorest patients, Mrs. Richmond suggested a uniform method of inspection and standard of efficiency for all homes, municipal or private, and pointed to existing schemes giving relief, in the home or not, which neither limit the patient's freedom to choose their attendant nor subsidise particular midwives or homes to the detriment of others.

Education as the Solution.

Miss Liddiard (Mothercraft Training School) proposed education as the remedy for maternal mortality; education of the general public, men as well as women, through the medium of women's institutes, mothers' unions, men's clubs, and so forth. This education, she said, should be given to women of all classes, and the expectant mother should be taught the immense importance of general health on pregnancy, labour, ability to nurse her infant and give it the best start in life, as well as taught to demand antenatal supervision, examination, and urine-testing, &c. After this comes the education of the mother as to the right feeding and care of the child in order to prevent rickets, and the early education of the school-girl in the ideals of motherhood.

The Chairman, after summing up the keynote of the conference as coöperation, invited discussion from the audience.

Discussion.

Mrs. F. Stobart suggested that women's institutes should be asked to give regular courses of lectures all over the country wherever there was a demand for them.

Miss Olive Haydon (York Road Hospital) said that each case should be studied to decide if it is suitable to be handled by a midwife alone, that 90 per cent. of labour might be normal, a fact not widely enough known, and that if the midwife could not distinguish between normal and abnormal cases she should not practise. If the midwife were able to call in not only the general practitioner but the expert many lives would be saved.

Miss R. Paget (Queen Victoria's Jubilee Institute) said she would like to make two practical if controversial suggestions: (1) That a post-mortem examination by Government officials should be held on every woman who dies in childbirth, whether rich or poor. (2) That it should be a penal offence for any person not a doctor nor a midwife to examine a woman internally. Miss Paget agreed with Sir Francis Champneys as to the importance of stating who delivered the patient on the notification of birth certificate, and she added that the midwife needs good consultants and she should be inspected by whole-time, thoroughly well equipped inspectors, and should be qualified professionally, mentally, and personally. Such women should be encouraged to practise instead of wasting their training by taking up other better paid jobs. Miss Paget ended by advising that at every wedding the husband should be presented with a manual enjoining consideration for the health of wife and future children, a course also advocated by the next speaker, Mrs. Milligan, member of the Surrey County Council.

Miss Wilmeshurst said that lives were sometimes imperilled by the lack of coöperation between the inexperienced student and his assistants, and that the student should be trained to look on the midwife and trained nurse as his co-workers instead of regarding them as handy women.

Dr. Harold Scurfield noted that all speakers had insisted on antenatal work as crux of any life-saving programme, and pointed out that outside the London area practically no antenatal work worth the name was going on in the country districts. The work of midwifery in many districts is passing from the doctor to the midwife, who needs expert advice. He had come across lately many instances of unemployed yet fully trained women doctors, and he suggested that these surplus doctors would constitute a good service to come to the aid of the midwife if trained as obstetric specialists. In Liverpool 90 per cent. of the cases are delivered by midwives and only about 20 per cent. of them send for the doctor. There were not enough antenatal specialists throughout the country.

Dr. Elizabeth Macrory (Inspector of Midwives) said that prenatal examination should not only be made by a skilled person, but a doctor should be present, or if not the result should be communicated to him. She also said that the sanitary authorities might help to lessen mortality in cases where removal to hospital was not possible by the loan, to be paid for if possible, of a provision of sterilised towels, &c., and that some proof of obstetric experience beyond that of student qualification should be required of students sent out to take confinement cases; they should be accompanied by someone skilled in at least normal obstetrics and a consultant should be available.

Miss Elsie Hall pointed out that if skilled inspection throughout the country could be ensured it would improve the education of the midwife.

Miss Sparks (Middlesex Hospital) thought that the midwife should also be a trained nurse.

The Chairman, in summing up, said that all deaths in childbirth should be investigated by the local authority, and that examination should take place not when the patient has succumbed but at the beginning of puerperal fever.

THE LONDON MEDICAL EXHIBITION.

A REVIEW OF THE EXHIBITS.

AT the Medical Exhibition organised by the management of the Seventeenth International Congress of Medicine, 1913, and the Fifth Clinical Congress of Surgeons, 1914, in the Central Hall, Westminster, London, S.W., which opened on Oct. 6th and closes to-day (Friday), a most informative collection of drugs and appliances used in the art of medicine and surgery, organo-therapeutic, bacteriological and pharmaceutical remedies, electro-therapeutic apparatus, and many ancillary agencies, such as dietetics, and hospital and invalid furniture, were displayed. The medical man is essentially a student, but in these days progress is so rapid that even the attendance at post-graduate courses hardly suffices to keep the practitioner abreast of present-day treatment. An exhibition of this kind affords an opportunity to the busy practitioner to see the products and inventions which follow so closely on advances in treatment or technique, and to appreciate the labours of the various firms who, in response to the scientific requirements necessitated by research, administer to the needs of medicine and surgery. That the exhibition really fills a need is shown by the large number of medical men who visited it between the hours of noon and 6.30 P.M. each day, and by the keen interest which they took in the exhibits. In addition, the exhibition afforded an opportunity for friendly discussion and social intercourse, for which arrangements were made by the organisers, while the presence of many foreign and overseas visitors, some 300 of the latter having applied for tickets, showed the wide appeal of this display of scientific medicine and surgery.

Many of the exhibits have already received attention in our columns, and for the convenience of readers we append at the end of this article a reference to our pages where more recent notices of interesting or noteworthy products or inventions have appeared.

The overlapping by many of the firms of medical and surgical exhibits, and the many adjuvants to both branches, make it impossible in describing the exhibition to adopt any scientific classification, but for convenience we take as main headings Drugs and Foods, Instruments and Appliances, Milk and Its Preparations, Spas and Waters, and Medical Books.

Drugs and Foods.

One of the first exhibits that caught the eye of the visitor was that of ALLEN AND HANBURYS, LTD. (37, Lombard-street, E.C., 7, Vere-street, W., and 48, Wigmore-street, W.), with its sections of pharmaceutical products, organo-therapeutic products, and surgical instruments. A prominent display is made of "Osmo" Kaolin,[1] a specially purified kaolin prepared by electro-osmosis, which has proved useful in the treatment of toxæmias of intestinal origin. Liquid extract of ergot, containing a standardised proportion of physiologically active constituents of ergot, was another preparation which attracted many visitors, as did also Saccharomycin, an isothermal, isotonic, and living yeast, which is supplied in fluid form in sterilised ampoules of 1 c.cm. for oral administration. Organic antimony compounds, which have been used with success in the treatment of tropical disorders, were also prominently exhibited, as well as this firm's foods for infants, Bynol and Bynotone,[2] Diabetic Flour,[3] and its preparations.—The varied products of the firm of BURROUGHS, WELLCOME AND CO. (Snow Hill Buildings, E.C.) were prominently displayed and were the centre of constant inquiries. A prominent feature of the stand was "Tabloid" Hypodermic Insulin Hydrochloride (Sterile), which is convenient to administer, readily portable, and may be dissolved within the syringe. The "Soloid" Urine-Sugar Test Case, which was also shown, is designed further to facilitate the examination of diabetic urine. This small portable case contains all the essentials for the quantitative determination of sugar. "Soloid" Benedict Test supplies a simple method of performing this delicate test. Among gland products was Parathyroid[4] and the Wellcome Sera and Vaccines, produced at the Wellcome

Physiological Research Laboratories, were also shown, as well as "Ethidol," a colourless, non-irritating liquid, containing 20 per cent. of iodine, for intraglandular injections and inunction. The external use of "Ethidol" in conjunction with the internal use of Iodicin enables the iodides to be intensively exhibited. Chemicals and Soloid products were exhibited in large variety, and interest was shown in the Tabloid medical equipments and first-aid outfits with which American and British airmen were equipped in the recent round the world flights.—BOOTS PURE DRUG COMPANY, LTD. (Nottingham), showed a comprehensive display of synthetic and medicinal chemicals, compressed drugs and tablets suitable for rapid solution of drugs for external application, &c., pharmaceutical preparations, and so forth. All these are manufactured under rigid analytical control conditions, thus ensuring definite therapeutic action. Among arsenical preparations was Stabilarsan.[5] Dressings and sundries formed another section of this characteristic exhibit, which enabled inquirers to select for immediate or future use almost everything that a medical practitioner may require in general practice. Insulin was a special feature of this exhibit and practical demonstrations of MacLean's apparatus for blood-sugar estimations were given.—A particularly interesting exhibit was that of the ANGLO-FRENCH DRUG CO., LTD (238A, Gray's Inn-road, W.C.), who had a wide display of pharmaceutical preparations, including Dimol, an intestinal disinfectant in the ordinary form of pulverettes and syrup, as well as in the new forms of dentifrice, ointment, and pastilles. Cardibaine,[6] known in France as Ouabaine, a chemically pure crystallised strophanthin, and Digibaine,[6] an association of strophanthin and digitalin, were also shown, and a large number of intravenous solutions for various purposes. Pharmasols, pharmaceutical colloids, were a special feature of this exhibit, and particular attention was called to Oragol, an electrically prepared suspension of colloidal silver and gold for infectious conditions in nose, throat, and eye affections. The preparation is put up in an attractive case with a dropper and nasal douche. Néocaine, with the Gaston Labat syringes and needles, were also shown.—Among the fine display of colloids by the CROOKES LABORATORIES (British Colloids, Ltd., 22, Chenies-street, W.C.) was Ichthyol, prepared from the distillation of fossilised marine deposits found in the Norfolk oilfields. This, it was particularly pointed out, is a natural product and not a synthetic preparation. Collosol Iodo-Cataplasma, for use in the place of ordinary poultices, also received marked attention.—A noteworthy exhibit was that of the BRITISH ORGANOTHERAPY CO., LTD (22, Golden-square, Regent's-street, W.). Here was displayed a selection of scientific organo-therapeutical products, both for oral and hypodermic administration—monoglandular and pluriglandular products, which, it was pointed out, are made from fresh materials (within a few minutes of the death of the animal), and every animal used has to pass a stringent examination by a veterinary surgeon before the required glands are dissected. Among the products exhibited were Lymphoid Compound, for functional nervous disorders; Lymph Serum, for degenerative, mental, and nervous conditions; Evatmine, for asthma; and Pancreatokinase, for diabetes mellitus and glycosuria.—The principal exhibits of the ANGLO-AMERICAN OIL CO., LTD. (Albert-street, Camden Town, N.W.), were Nujol and Mistol, the first being a paraffin product of exceptional purity used as an intestinal lubricant, and the second an oily solution for use in an atomiser by means of which the soothing and antiseptic properties of camphor, menthol, and eucalyptol, are brought into intimate contact with the mucosa of the nose and throat.—At the stand of G. W. CARNRICK CO.'s Standardised Gland Products (London Agents, the A.D.S. Co., 40–42, Lexington-street, W.) preparations were exhibited in variety and particularly for use in menstrual and menopausal disorders and in neurasthenia (Hormotone); diabetes (Trypsogen); gastro-intestinal disorders (Secretogen); and as an aid to metabolism in tuberculosis, malnutrition, &c. (Kinazyme).—Much interest was shown in the stall of ENDOCRINES, LTD. (72, Wigmore-street, W.), where there was a large collection of pluriglandular preparations of the Harrower Laboratory known as "Polycrines." This laboratory prepares 33 various combinations of the endocrine glands in tablet form for oral administration and four combinations of glands in the form of solution for hypodermic injection. The latest addition to the list is a nucleoprotein solution of parathyroid and spleen (Sol. Para-Spleen Co.) put up in ampoules. This is a special product of the Harrower Laboratory. A vest-pocket "Manual of Pluriglandular Therapy," containing 290 pages, is distributed by the firm for the use of medical men.—The original preparations of C. J. HEWLETT AND SONS (35–42, Charlotte-street, and 83–85, Curtain-road, E.C.) drew attention by reason of their external attractiveness no less than by their indicated use. These included antiseptic cream for eczema, abrasions, &c.; Mist. Pepsinæ Co. c. Bismutho, as a remedy in dyspepsia, gastrodynia, pyrosis, gastritis, and sickness; and Evapogens, a series of medicated skin lotions, containing spirit, that rapidly evaporate on the skin. A special feature of the exhibit was Dr. Crofton's Human Tubercle Bacillus Solution for the immunisation treatment of tuberculosis.—Among the large selection of preparations for use in the treatment of syphilis exhibited by MAY AND BAKER, LTD. (Battersea, S.W.), was Novarsenobillon ("91"), Arsenobillon ("606"), Arseno-argenticum, and Eparseno ("192") amino-arseno-phenol, the base of "606" combined with glucose. This is used in syphilis, yaws, recurrent fever, and has had marked success in leprosy. Stovarsol, hydroxyacetylaminophenylarsenate, is a new preparation for use in amœbic dysentery. Attention was also called to Rubyl—bismuth and quinine iodide—which in syphilis appears to be the best tolerated of the insoluble salts of bismuth.—At the stall of OPPENHEIMER, SON AND CO., LTD. (179, Queen Victoria-street, E.C.), Roboleine, the "A," "B," "C" vitamin diet, was exhibited; organic preparations in their well-known palatinoids, and argentum, cuprum, ferrum, hydrargyrum, iodum, manganese palladium, selenium, stibium, and sulphur "oscols." The palatinoid administration of hormone products was also demonstrated.—In connexion with vitamin preparations VITMAR, LTD. (Standen-road, Southfields, S.W.), showed their product, which is an intimate emulsion of ox fat, raw egg yolk, wheat germ extract, and fresh fruit juice, and has the high food value of 400 calories per 100 grammes. Its use is indicated in the treatment of all forms of malnutrition, rickets, neurasthenia, gastro-intestinal disorders, and all conditions in which a bland, readily absorbed nutrient is necessary.—A new antiseptic and germicide, Dibromin ($C_4Br_2N_2H_2O_3$), was shown by PARKE, DAVIS AND CO. (50, Beak-street, Regent-street, W.). This is a white crystalline powder slightly soluble in water, but more so in glycerine or alcohol, and by the Rideal-Walker test has been shown to be 105 times as powerful as pure carbolic acid. It is claimed to be practically non-toxic and non-irritating when used in dilute aqueous solution of 1 in 10,000 to 1 to 1000. It also does not coagulate albumin. Gland products, pharmaceutical preparations, and anti-catarrh vaccine and mixed vaccine for colds were other exhibits which excited much interest.—Scillaren,[7] cardio-tonic glucoside of squill allowing of the exact medication required in modern therapy, and a valuable adjustment to digitalis, was exhibited by the SANDOZ CHEMICAL CO., LTD. (Canal-road, Bradford), as well as Femergin (Ergotamine "Stoll"), Ipecopan, an expectorant and sedative which contains the pure alkaloids of ipecacuanha and opium, and Felamine, for treatment of affections of the biliary system. Attention was drawn to Matinol, a dietetic and digestive biscuit which regulates the intestinal functions and provides an entirely new medium for the administration of paraffin.—The preparations of SAVORY AND MOORE, LTD. (143, New Bond-street), were prominently exhibited, and special interest was shown in their foods for infants and adults. The easily digestible peptonised cocoa and milk and peptonised milk attracted many inquirers, as did also the acid glycerin of pepsin (Bullock) which has a sweet taste and agreeable flavour and may be combined with most medicinal substances with which acids are compatible. A dainty preparation of this firm is Aphrodont tooth paste.—Many inquiries were made at the stall of W. MARTINDALE (10, New Cavendish-street, W.) whose preparations made a striking appeal. Among them were two chemical substances new to medicine—namely, Aspriodine—which combines the properties of aspirin and iodides, and Sedasprin, a definite compound of bromine and aspirin. Mercurochrome,[8] an antiseptic, also produced many inquiries. Attention was drawn to the eighteenth edition of the "Extra Pharmacopœia" of this firm, which is published this week.—The display of CHARLES ZIMMERMANN AND CO. (9 and 10, St. Mary-at-Hill, E.C.) included Idozan, described as a colloidal iron concentrate for use as an oxy-hæmoglobin excitant in the treatment of anæmia, and Kathiolan "one application" treatment for scabies. Attention was particularly drawn to Asthmolysin (adrenalin-pituitary compound), a sterile and effective anti-spasmodic, for hypodermic use in the treatment of acute attacks of bronchial asthma, and to Incitamin, a comparatively new remedy for the treatment of slowly healing sores.—Interesting preparations to be seen at the exhibit of BENGUE AND CO. (52, Charlotte-street, W.) were: Dr. Bengue's Balsam, menthol, methyl salicylate, lanoline, analgesic, antiseptic; Ethyl Chloride, for local and general anæsthesia; Pulmo Bailly, for diseases of the respiratory organs, asthma, bronchitis, catarrh, and tuberculosis; and Forxol, a preparation of nucleogenic vitamins for neurasthenia and disease of nervous origin.—The Izal disinfectant specialties were shown by NEWTON, CHAMBERS AND CO., LTD. (331, Gray's Inn-road, W.C.). Izal disinfectant in the form of medical and ordinary fluids, perles, ointment, lozenges, cream, household, and toilet and medical soaps, and the "Zal" Disinfector, which is an improved form of bronchitis kettle which can be used over a gas ring, spirit lamp, &c., under circumstances where it is not practicable to fit up a steam installation. Two useful preparations of this firm elegantly put up in collapsible tubes were Izal Toilet Lano-Cream and an antiseptic shaving foam.—Among the preparations displayed by GENOTOSAN LTD. (Loughborough, Leicestershire) were the tonic food Sanatogen, a germ-killing snuff, Nasmint, Formamint, and Genasprin. Detoxicated vaccines were also shown in variety.—JEYES' SANITARY COMPOUNDS CO., LTD. (64, Cannon-street, E.C.), exhibited a large number of preparations of Cyllin which has a high bactericidal power with but slight toxicity. Among them were inhalant capsules for use in stomachic and intestinal antisepsis, syrups for infantile diarrhœa, pastilles, dusting powder, ointments, and so forth. Jeyes' Lysol (Jeysol) and Jeyes' Cyllin Veterinary 3 m. capsules for dogs were also displayed.—The stall of the HOFFMANN-LA-ROCHE CHEMICAL WORKS, LTD. (7 and 8, Idol-lane, E.C.) had a very fine display of drugs including among others "Digalen"; "Iodostarin"; Oleo-Bi[9] and Tartro-Bi; "Omnopon," total opium; "Spasmalgin"; "Thiocol"; and other well-known "Roche" products. Much interest was shown in this firm's "Allonal,"[10] or allyl-isopropyl-barbituric acid combined with phenyl-dimethyl-amino-pyrazolon, which is non-narcotic, and the claim is made that it is non-habit-forming. It contains no opium derivatives and can be used in the place of morphia where indicated.—VIROL, LTD. (Hanger-lane, Ealing, W.), in addition to their well-known specialties of Virol and Virolax, displayed Virol and Milk in powder form which, mixed with hot water, makes a useful tonic food.—OXO, LTD. (Thames House, Queen-street, E.C.), who showed Oxo in various forms, Lemco and Lab-Lemco, made a special feature of "Oxoid" Gland extracts, in connexion with which two interesting pamphlets are issued; the thyroid gland and the pituitary gland, both containing general observations on glandular therapy.—The merits of products of BOVRIL LTD. (148–166, Old-street, E.C.) are too well-known to need more than passing mention.—An attractive display of California Syrup of Figs was made by FASSETT AND JOHNSON, LTD. (86, Clerkenwell-road, E.C.).—The MALTINE MANUFACTURING CO., LTD. (9, Holborn Viaduct, E.C.), showed their malt preparation which contain the nutritive element of wheat and oats, in addition to those of barley.—J. C. ENO, LTD. (Pomeroy-street, S.E.), demonstrated the properties of their well-known fruit salt, and presented to their many inquirers a copy of "The Practitioners' Pocket Book," a useful little book containing matters of much interest to medical men.—Thermogene Curative Wadding, THERMOGENE CO., LTD. (Hayward's Heath, Sussex). This is a prepared cotton-wool with analgesic and counter-irritant properties, which has been found of use for some considerable time.—DENVER CHEMICAL MANUFACTURING CO. (London, E. 3) made a display of the now well-known Antiphlogistine, an hygroscopic and antiseptic poultice the use of which was illustrated in a series of attractive pamphlets.—Angier's well-known emulsion (petroleum with hypophosphites) was shown by the ANGIER CHEMICAL CO., LTD. (86, Clerkenwell-road, E.C.).—In addition to Pineoleum Brand Inhalant,[11] PINEOLEUM CO., INC. (American Drug Supply Ltd., 40–42, Lexington-street, W.) showed a new form of the preparation which consists of a paste in a collapsible tube. This is a convenient way of administering Pineoleum to the mucous membrane of the nose.—Prominent on the stall of PEPSODENT CO. (42, Southwark Bridge-road, S.E.) was the Decoater Tooth-brush designed for use with the tooth paste "Pepsodent." These brushes are of such a shape that the bristles penetrate to all parts of the oral cavity; they are contained in a pocket case.—KOLYNOS INCORPORATED (Chenies-street, W.C.) showed their dental cream, an antiseptic which does not interfere with the normal secretions of the mouth and makes a most efficient cleansing agent for the teeth.—KEEN, ROBINSON AND CO., LTD. (incorporated with J. and J. Colman, Ltd., London and Norwich), in addition to their well-known mustard, showed an ointment having all the therapeutic virtues of the mustard plaster, and Almata,[12] a complete food for infants, invalids, and nursing mothers. Robinson's Patent Groats and Patent Barley were also exhibited.

References.

1. Osmo Kaolin (Morson), 1924, ii., 662.
2. Bynol and Bynotone, 1923, i., 342.
3. Diabetic Flour, 1923, i., 30.
4. Tabloid Parathyroid, 1924, ii., 662.
5. Stabilarsan, 1923, i., 30.
6. Cardibaine and Digibaine, 1924, i., 398.
7. Scillaren, 1923, ii., 1144.
8. Mercurochrome, 1924, i., 398.
9. Oleo Bi., 1923, ii., 1090.
10. Allonal, 1924, i., 398.
11. Pineoleum, 1923, ii., 1144.
12. Almata, 1923, i., 30, and 342.

(*To be concluded.*)

Correspondence.

"Audi alteram partem."

FACT AND THEORY IN RADIO-THERAPY.

To the Editor of THE LANCET.

SIR,—In your issue of Sept. 27th Dr. F. Hernaman-Johnson discusses some of the principles in the radiotherapeutics of cancer. In this article there are one or two passages in which the author departs from his usual lucidity, and which seem to me to afford the occasion for comment.

In the first instance, the author appears to confuse facts and theory. On p. 635 he says: "I made a statement in 1916, I think, to the effect that ultra-violet rays could not benefit exophthalmic goitre 'because they had practically no penetration'; and one sees similar statements to-day." He then refers to the fact that deep-seated lesions may be benefited by this form of therapy, cries an honest "peccavi," and then says "we should beware of denying clinical facts because of physical theories." I do not think we should blame theory here; judgment upon the physical facts has been wrong, but even the facts were right. (I join in the peccavi!)

Secondly, the author on p. 638 seems to me to invoke a theory against the facts. He is discussing the well-known clinical fact that growths become apparently resistant to repeated applications of X rays. Obviously this may be due either to the malignant cells or to the tissues of the host, an alternative not easily decided upon in the human subject. He then refers to the fact that when animal tumours are removed from the body and given repeated doses of X rays, the same phenomenon appears. The experimenter responsible for this finding has concluded that whatever the body of the host may do, the cells of the tumour thus repeatedly irradiated acquire an increased resistance to the rays. Dr. Hernaman-Johnson thinks it is perhaps simpler to assume that certain cells by reason of variation, or even of mutation, have inherently a higher resisting power; that these alone survive and their descendants inherit the favourable character. To my mind it is not a simpler assumption, and it is contradicted by the facts which form the working basis of lethal dose determinations.

Finally, a word upon the first of Dr. Hernaman-Johnson's conclusions. He says: "The wave-length most suitable for any given type of growth can be found only by clinical observation." This is an amazing statement, for if there is a laboratory investigation likely to throw some light on therapeutic probabilities I do not think that a better example could be found than this study of the animal response to measured doses of radiation of different wave-lengths.

Surely, if data of this sort were found, the experimenter would probably get from radiologists the consideration that laboratory investigations bearing on other aspects of medicine receive.

I am, Sir, yours faithfully,
Middlesex Hospital, W., Oct. 4th, 1924. SIDNEY RUSS.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—Mr. A. T. Pitts in his letter on the above subject in your issue of Oct. 4th does not refer to the fact that a Departmental Commission, which sat and took evidence on how to solve the problem of dental disease as well as how to look after the interests of the dental profession, reported that local authorities could not afford to employ dentists to do the minor dental work, and that trained dental nurses might be trusted to do this work under proper supervision. A Bill was introduced to give effect to the recommendations of the Departmental Committee, and a clause in the Dentists Act enables the services of trained dental nurses to be utilised, on conditions to be approved by the Minister of Health. But the conditions now laid down by the Minister will now stop the work they have been doing in Derbyshire for the last five or six years. Mr. Norman Bennett, who gave evidence on behalf of the British Dental Association against trained dental nurses being employed on any minor operative work, was called in by the Board of Education to advise them, and two of the conditions laid down in Circular 1279 are recommendations contained in Mr. Bennett's report to the Board of Education. It is as if the town clerk of Ephesus had invited Demetrius to draft a circular giving the conditions under which Christianity could be preached without detriment to the craftsmen he represented. It would be humorous if it were not tragic.

Two important questions arise from Mr. Pitts's letter: (1) *Are these trained dental nurses efficient?* Mr. Pitts has given a verdict without any examination of their work. The work of our trained dressers has been tested by more than half a dozen different dentists, and not one has been able to say that the work is not of the highest professional standard. I will withdraw from any advocacy of dental nurses if it can be shown that the scheme is in any way injurious to the children. (2) *Is the scheme in the interest of the dental profession?* Undoubtedly it is, for if sanctioned, every authority in the country would be only too willing to provide a public dental service, and there would at once be a great demand for dentists. At the present time we are doing nothing for our antenatal mothers, whose teeth are crying for attention. This is work which should be done by dentists alone. We are doing nothing for children below school age; this is suitable work for a dental nurse working under the supervision of a dentist. Practically nothing is being done in this country for the teeth of patients suffering from tuberculosis, and above all, the Royal Commission now sitting is sure to recommend that dental treatment shall be one of the benefits to be given under the Insurance Act. This work is all work which must be done by dentists, and those who are working with me for the recognition of trained dental nurses to do "minor dental work" under the supervision of a dentist, as recommended by the Departmental Committee, will loyally support the dental profession in safeguarding their interests.

When Circular 1279 was drawn up none of the authorities who were employing trained dental nurses were consulted, either by the Board of Education or by the Dental Board. Speaking for myself, I should be perfectly satisfied if every dentist was limited to *one* dental nurse working with him, provided the work of inspection in the schools with probe and mirror were entrusted to another.

I can assure your dental readers that no member of their own profession has their real interests at heart more than myself, and unless a compromise can be effected on this question I have no doubt that a scheme on the lines of the New Zealand scheme will find its place on the Statute Book before many years.

I am, Sir, yours faithfully,
Sidney Barwise.
Medical Inspection Department, Derby, Oct. 6th, 1924.

THE LATE MR. W. H. A. JACOBSON.

To the Editor of The Lancet.

Sir,—I did not serve directly under Jacobson at Guy's, but the out-patients offered opportunities for appreciation. No one who observed him could doubt he "postulated a continuity," that he was an aristocrat and no self-made man, even if in his lectures he had never spoken of "my father the Bishop"—one of the subjects of Dean Burgon's "Lives of Twelve Good Men." Jacobson could be exacting and seemingly haughty, yet I hazard he was essentially humble, and "without humility, no veracity." A man walking up to him between rows of students, with hat on, would meet with resenting disapproval, but many a forlorn woman called forth Jacobson's practical sympathy. And now, in the faded days, I think if there was one characteristic more than another it was his glow.—I am, Sir, yours faithfully,

Dean-rd., Willesden Green., N.W. Richard Gillbard.

THE HEALTHY HEART.

To the Editor of The Lancet.

Sir,—The case of an ex-Service man who consulted me recently has some bearing on the "healthy heart." Eight medical boards of the Ministry of Pensions diagnosed his case as valvular disease of the heart, the last board making a final award equivalent to a disability of 16 per cent. for two and a half years, and then of 0·25 per cent. for the rest of his life. That, of course, must mean that the medical board were of opinion that after two and a half years the man's heart would be practically a "healthy heart"! At present there is well-marked mitral regurgitation, enlarged heart, and the "effort syndrome" which denotes impaired musculature. Can any of your readers tell me under what treatment such a heart can be restored to normal within two and a half years, or at all? The Ministry of Pensions, I may add, has refused to allow an appeal on the ground of the application not being made within the year.

I am, Sir, yours faithfully,
D. F. Shearer, F.R.C.S.
Kidlington, Oxon, Oct. 6th, 1924.

THE SLEEPLESSNESS OF ENCEPHALITIS.

To the Editor of The Lancet.

Sir,—Since the early part of the year there have been about 50 cases of encephalitis lethargica under observation at Southmead Hospital. We have experienced the usual difficulty in dealing with "the sleeplessness by night, and the sleepiness by day" in ten cases. On carefully questioning them, I found that terrifying dreams had particularly affected this class; coming on directly they went off to sleep in a darkened room; keeping them awake practically all night, until the morning light, and hence their tired condition of the next day. I arranged for a bright light to be kept burning in their rooms (night-lights are not bright enough) and tried several shades of different colours; blue is the most soothing to them. Successful results have been obtained; they have soon gone off to sleep again. By keeping them well employed during the day with outdoor exercises they are rendered so tired that they soon sleep all night, and make a rapid recovery. I have noticed the liability to recurrence of encephalitis, and a more severe attack in those cases, where there is a family history of insanity or mental instability, as though the toxin was possibly more severe in its effects on a brain already weakened by an hereditary taint.

I am, Sir, yours faithfully,
Robert H. Norgate,
Medical Superintendent, Southmead Hospital,
Sept. 29th, 1924. Bristol.

EXPERIMENT AND OBSERVATION.

To the Editor of The Lancet.

Sir,—In the introductory address by Sir David Ferrier published in The Lancet of Oct. 4th, a quotation from Lord Moulton, evidently endorsed by the speaker, occurs as follows: "The right way to advance knowledge is by experiment. When we are reduced to observation, science crawls." As a mathematician and chemist, the experimental method of advancing knowledge may have seemed to Lord Moulton the only method of importance. But it is unfortunate that this one-sided statement should be authoritatively presented to medical students, since of those who may feel a wish to advance their science perhaps nine-tenths will never get the chance of performing experiments either before or after they are qualified. They might also have been told that the extent to which advance depends on experiment varies with the sciences; that physics and chemistry exemplify sciences forwarded almost exclusively by experiment, while at the other extreme is a science like geology, built up almost entirely on observation and inference; that medical science occupies an intermediate position, experiment being necessary to determine causes and means of cure, while the observational method is necessary to differentiate and delineate disease. Patient and continuous observation of diseased subjects is the crying need of every generation in medicine; its neglect being due, not to its unimportance, but to the difficulties surrounding it, and because its importance is seldom taught in the schools. The insight given by successful observation is of signal importance to medical progress, and may even determine a new epoch in the study of a subject; the masters of this method have at all times been among the acknowledged eminent of their age. Every student should be made to realise that nothing in his training or after-opportunities need prevent him from embarking on a career of research, or from hoping to reap the distinction and reward of some solid discovery.

I am, Sir, yours faithfully,

Liverpool, Oct. 6th, 1924. EDMUND HUGHES.

THE NEW METHYLATED SPIRIT.

To the Editor of THE LANCET.

SIR,—Having to-day ordered a lotion containing spt. vini meth., I was told by the chemist to whom the prescription had been taken that there is some doubt whether this spirit, since the recent alteration in its composition, is suitable for application to the skin. Seeing how very largely it has been so used in the past, it is desirable to know certainly whether methylated spirit, in its new form, has any harmful action on the skin.

I am, Sir, yours faithfully,

Oct. 6th, 1924. SENEX.

*** The crude pyridine which since May last has been added in the proportion of 0·5 per cent. to methylated spirit as sold to the public is, we understand, irritating to the skin as well as to mucous membranes.—ED. L.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

R. M. Drennan to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. J. H. R. Bond retires on ret. pay and is granted the rank of Col.

TERRITORIAL ARMY.

Maj. P. J. Gaffikin to be Lt.-Col. and to commd. the 131st (Home Counties) Field Amb., vice Lt.-Col. C. W. Ponder, whose tenure of commd. expires.

Capt. G. Adam, having attained the age limit, is retired and retains the rank of Capt.

ROYAL AIR FORCE.

C. J. MacQuillan and F. P. Schofield are granted short service commissions as Flying Officers.

INDIAN MEDICAL SERVICE.

The King has approved the retirement of Maj.-Gen. B. H. Deare.

Lt. Ram Nath Bhandari to be Capt.

Lt.-Col. E. F. Tucker, on return from leave, becomes Senior Medical Officer, First Physician, J. J. Hospital, and Professor of Medicine and Therapeutics, Grant Medical College, Bombay. Lt.-Col. R. M. Carter becomes Second Physician and Registrar, J. J. Hospital, and Professor of Materia Medica and Pharmacy, Grant Medical College, Bombay. Maj. M. J. Holgate, on the termination of the Mahableshwar season, took over the duties of Surgeon, Ahmednagar. Maj. S. S. Vazifdar acts as Presidency Surgeon, Second District, Bombay, with attached duties, in addition to his present duties as Second Physician at the J. J. Hospital, until relieved of the latter duties by Lt.-Col. R. M. Carter, and thereafter acts as full-time Presidency Surgeon, Second District, Bombay, with attached duties. Lt.-Col. C. B. McConaghy has been posted as Administrative Medical Officer in Central India and Residency Surgeon, Indore. Maj. A. N. Thomas, on return from leave, has taken over the duties of Superintendent of Mahableshwar, vice Maj. M. J. Holgate.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reassembling of Parliament.

PARLIAMENT reassembled on Tuesday, Sept. 30th, after the summer recess. The object of having an earlier meeting than was originally intended was to pass the Irish Boundary Bill, a measure giving power to the British Government to set up the Commission to settle the boundary between Northern Ireland and the Free State, and to appoint a Commissioner in view of the refusal of the Northern Irish Government to do so.

HOUSE OF COMMONS.

THURSDAY, OCT. 2ND.

Revision of Pension Warrant, 1919.

Dr. SPERO asked the Minister of Pensions if he proposed to revise the whole of the Royal Pensions Warrant, 1921, in view of the large number of amendments and changes of entitlement which had been issued recently.—Mr. F. O. ROBERTS replied: Yes, Sir. It is intended at a convenient opportunity to issue an up-to-date version of the Royal Warrant of December, 1919 (to which I presume the hon. Member refers), and of the concurrent Orders-in-Council, embodying the various amendments that have been made since their issue.

Physical and Mental Condition of Murderers.

Mr. LAMB asked the Home Secretary whether official daily bulletins were issued as to the physical, mental, and spiritual condition of convicted murderers awaiting execution; and if not, whether he had taken any steps to ascertain the source of such bulletins that had recently been published.—Mr. DAVIES (Under Secretary for Home Affairs) replied: My attention has been called to bulletins or reports of this kind which have recently appeared in newspapers. They certainly have not been communicated by the prison authorities. The reports themselves have been utterly devoid of truth and seem either to have been invented by the writers or to have been based upon false statements made to them by discharged prisoners or others professing to be able to supply information.

Medical Opinion and the Smoke Nuisance.

Sir WALTER DE FRECE asked the Home Secretary whether he was aware of the growing criticisms of medical officers as to the evil effect of the smoke nuisance; and, seeing that the law was not sufficient to deal with this growing menace to the public health and that the police statistics showed a serious increase in the number of private chimneys which caught fire as the result of carelessness in respect of sweeping, would he inquire into the matter.—Mr. GREENWOOD (Parliamentary Secretary to the Ministry of Health) replied: A Bill dealing with the smoke nuisance has been introduced in the House of Lords and has been read a second time and passed through Committee. My right hon. friend is advised that powers already exist for dealing with the nuisance arising from private chimneys which take fire.

New Form of Death Certificate.

Mr. PENNY asked the Home Secretary whether, in the new form of death certificate to be issued, he would make it compulsory for doctors to inspect the body of the deceased before signing, so as to safeguard, as far as possible, against the chance of live burial.—Mr. GREENWOOD replied: No powers are available which would enable such an obligation to be imposed upon medical practitioners, and legislation would be necessary to give effect to the hon. Member's suggestion.

Procreation of Unfit Children.

Mr. BLACK asked the Minister of Health whether, in view of the continuously enlarging financial responsibilities accepted by the State with regard to unemployment, invalidity, and old age, he would state the policy of the Government with respect to the procreation of children who, owing to physical or mental deficiencies, became a charge upon the State funds; and whether he was prepared to appoint a Royal Commission to investigate into the possibilities of improving the calibre of the nation by restricting the procreation of children to persons possessing a recognised minimum standard of physical and mental efficiency.—Mr. GREENWOOD replied: As at present advised my right hon. friend does not see his way to recommending the appointment of a Royal Commission on this subject. I may perhaps add that he is not aware of the existence of any recognised standards of physical and mental efficiency.

Lee Commission and Indian Medical Service.

Colonel Sir CHARLES YATE asked the Under Secretary of State for India if it was now proposed to bring the recommendations of the Lee Commission into operation without further delay; and whether these recommendations would be adopted in full, including those relating to the medical service.—Mr. RICHARDS replied: I am not yet in a position to make any statement on this subject. My noble friend, the Secretary of State, is still in correspondence with the Government of India on certain points, and both he and the Government are desirous that orders on the report should be issued with the least possible delay.

Reform of Public Health Laws.

Mr. ROBERT RICHARDSON asked the Minister of Health if the statement in the Annual Report for 1923 of Sir George Newman to the effect that in hundreds of sanitary districts there was a failure to use the facilities which the sanitary law provided was based upon official records of the Ministry of Health; and, if so, whether he was prepared to appoint a Royal Commission to inquire generally into the whole question of the administration of the laws relating to public health and housing and the generally unsatisfactory conditions prevailing in the sanitary service.—Mr. GREENWOOD replied: The answer to the first part of the question is Yes. The second part refers to a matter which would fall within the scope of the terms of reference to the Royal Commission on local government now sitting.

Sir George Newman and Public Health Administration.

Mr. JOHN GUEST asked the Minister of Health whether he had read the statement of Sir George Newman in his report for 1923, to the effect that there were many authorities and medical officers of health who muddled on from hand to mouth, the victims of every passing whim or popular stunt, instead of organising their work as responsible and competent men charged with the duty of directing the public service of their district; whether there was any record at the Ministry of the muddling authorities and incompetent medical officers of health; and, if so, what action he proposed to take, in the interests of the community, to remove the medical officers of health referred to from office and to supersede such authorities.—Mr. WHEATLEY replied: The answer to the first two parts of the question is Yes. With regard to the third part, the difficulty is largely due to the passivity of local public opinion on health questions in many areas, and I have this point under consideration. Further difficulty arises owing to the number and size of many of the 1800 sanitary authorities, a subject which would fall within the scope of the terms of reference to the Royal Commission on Local Government now sitting. There is no question that the large authorities are, as a whole, discharging their duties satisfactorily.

Medical News.

UNIVERSITY OF LONDON: *University College.*—Prof. S. L. Rashkovich, M.D., Director of the Technical Sanitary Institute of Petrograd, will deliver a course of four public lectures on Water-supply and Its Purification, at University College, on Fridays, Oct. 10th, 17th, 24th, and 31st, at 5.30 P.M. The chair at the first lecture will be taken by Prof. H. R. Kenwood. Tickets of admission are not required.

UNIVERSITY OF LONDON: *Parliamentary By-Election.*—In his election address Dr. F. G. Bushnell says that he supports thoroughly the programme of the Labour Party to develop fully the medical and social "community services," especially the extension of the benefits of the National Health Insurance Acts, and the further and better utilisation of hospitals and infirmaries for the public. He believes in wide publicity and propaganda being afforded by the State in preventive medicine, and is in complete agreement with the Advisory Committee of the Trades Union and Labour Party in their health policy. The task of preventive medicine is made more difficult by the fact that most infections are due to ignorance of the principles of hygiene and sanitation. Preventive medicine, he concludes, has become a basic factor in sociology both as regards the unhealthy conditions that affect the person (i.e., hygiene) and those that result from defective environment (i.e., sanitation).

HOSPITAL DINNERS.—The Annual Dinner of the Old Students of the *London Hospital* was held at the Trocadero Restaurant on Oct. 1st. Over 200 attended, and the present and past staff of the hospital were well represented. The chair was taken by Prof. W. Bulloch, who for 27 years has been in charge of the bacteriological department of the hospital. He referred to the changes which had taken place in that time, during which the whole of the visiting staff has changed, with the single exception of Lord Dawson. Paying a striking tribute to Lord Knutsford, he spoke of the rapid developments which had been made at the London Hospital in his own time, contrasting its atmosphere of energy and progress with the "mediæval repose" which he had observed elsewhere. His hearers were left in no doubt as to the vast advances which have been made in scientific medicine, in which bacteriology has played so large a part, but some of them may have felt a twinge of regret at the passing of the personalities who dominated the hospital 30 years ago, when F. J. Smith astonished the students by his language, and Treves by his operative daring. In spite of its size, Prof. Bulloch concluded, the London Hospital had succeeded in maintaining that personal contact with its students which was one of its oldest traditions, and which formed the greatest and most striking characteristic of medical teaching in this country.

The Annual Dinner of the Past and Present Students of the *Middlesex Hospital* Medical School was held at the Hotel Cecil on Wednesday, Oct. 1st, Mr. G. Gordon-Taylor, surgeon to the hospital, occupying the chair. There was a very large gathering of the alumni of the school, the total, including guests, being about 260. The guests included Sir Douglas McGarel Hogg, M.P., Sir William Leishman, F.R.S., the Mayor of St. Marylebone, Mr. W. Hartman, and Mr. F. G. Hallett. The Chairman, in proposing "The Middlesex Hospital and its Medical School," referred to the friendly relations between the lay board and the medical staff and to their loyal coöperation in all matters affecting the work of the hospital. He alluded to the value of the efforts of the League of the Associated Hospitals of St. Marylebone and to the formation through the agency of the mayor of an employers branch of this League. He voiced the general regret at the loss of Lord Athlone as chairman of the weekly board, pointing out that he had endeared himself to every person connected with the hospital. The resignation of Dr. Campbell Thomson and that of Prof. W. S. Lazarus-Barlow were also serious losses to the hospital and school. He was sure that all present would be sorry to learn of the resignation of Mr. A. E. Webb-Johnson of the office of dean, which he had filled with such great advantage to the school, and he drew attention to the great work he had achieved in helping to put the school on a sound financial basis. He alluded to the pride felt by all Middlesex men in the re-election of Sir John Bland-Sutton to the office of President of the Royal College of Surgeons and to the professional honours and distinctions conferred upon other old students of the school. Mr. Richard C. Davis, chairman of the Finance Committee of the school, in replying for the hospital, pointed out that medical education and research were essential functions of a hospital. In spite of its great value research was not fostered in this country as it deserved to be. Mr. Webb-Johnson, in replying for the school, mentioned the generous gift of £20,000 from Mr. Courtauld to endow the chair of anatomy in the medical school. He thought it must be unique for a hospital to number amongst its residents at one time three gold medallists at the London M.B., as was recently the case at the Middlesex Hospital. He expressed his regret at relinquishing the office of dean, but regarded the charge of the school as in the nature of a relay race. Mr. C. Vincent Cotterell, in replying on behalf of the old students, described the great increase in the work of the hospital. When he joined 46 years ago the hospital had 305 beds with 36 devoted to cancer cases, whereas now there were 450 beds with 92 for cancer. He mentioned that out of a staff of 40, 26 were old students of the school. Mr. J. W. Nankivell, the senior Broderip Scholar, replied on behalf of the present students. The toast of "The Guests" was proposed by Sir Arnold Lawson. Sir Douglas Hogg, in replying, maintained that the efficiency and progress of medical science were due to the hospitals. He spoke with approval of the useful work of the St. Marylebone Hospitals League. Sir William Leishman spoke of medical research and of the useful work being accomplished in the Bland-Sutton and cancer research laboratories. He was optimistic as to the outlook in the future for pathological research.

The Annual Dinner of *St. Mary's Hospital* Medical School was held at the Connaught Rooms on Monday, Oct. 6th, when 149 members of the school, past and present, attended. Dr. Eustace M. Callender, who was in the chair, proposed the continued prosperity of the school, and contrasted St. Mary's in his day with the present position, recalling some amusing scenes of his student days. He asserted his belief that the future of the school was very bright, judging by the expansion of the buildings, the keenness of the teaching staff, and the large number of students. The Chairman of the Hospital Board, Mr. A. R. Prideaux, gave a short résumé of the activities of the hospital during the present year, and mentioned the extension of the X ray department and the proposed increase in operating theatre accommodation as instances of progress. He alluded to the great loss the hospital had sustained in the loss of Mr. W. H. Clayton-Greene from the surgical staff and paid a high tribute to his great position in the surgical world. Another loss which was Cardiff's gain was the appointment of Dr. E. H. Kettle to the professorship of pathology and bacteriology in the Welsh National University. He laid stress on the extraordinarily cordial relations which continued to exist between the lay board and the consulting staff of the hospital, a state of affairs so essential to the prosperity of any such institution. Dr. C. M. Wilson, Dean of the Medical School, stated that the entry was still maintained at a high figure, and held out great hopes for the future. Sir Anderson Critchett paid a graceful tribute to Dr. Callender, after whose reply the party broke up into informal groups to renew old friendships.

The annual Old Students' Dinner of *St. Bartholomew's Hospital* was held in the Great Hall of the hospital on Wednesday, Oct. 1st, when Dr. J. H. Drysdale presided for the last time as an active member of the honorary staff. In proposing the Hospital and College, he contrasted the pathological department as it existed 30 years ago, when the late Prof. A. A. Kanthack occupied one small room, with the present position when it had outgrown the handsome building quite recently provided. He alluded with satisfaction to the new building on the opposite side of Giltspur-street, which was now efficiently serving the purpose of teaching and research in physiology, physics, and pharmacology. Sir Herbert Cohen, joint treasurer of the Medical College, and Dr. Morley Fletcher replied, the latter reminding his hearers that although the new department had been paid entirely out of students' fees as a result of the large entries after the war, it remained true that no medical school could now pay its way solely out of such fees. Sir Archibald Garrod proposed "Our Guests," to which response was made by Mr. C. J. Ritchie, master of the Merchant Taylors Company, and Sir Walter Fletcher, who characterised the physiological equipment as second to none in London hospitals, and alluded to the further supplies of radium placed by the Cancer Campaign at the disposal of the hospital. The toast of "The Chairman" was proposed with grace and feeling by Mr. W. T. Holmes Spicer.

The annual dinner of *St. George's Hospital* was held on Oct. 1st at the New Hotel Metropole, London, Sir Isambard Owen, consulting physician to the hospital, being in the chair. There was a good attendance of students, and the feature of the dinner was the favourable report made by the Dean, Dr. J. A. Torrens, on the position of the medical school. The entry at the school, he said, bade fair to be larger than it had been for some 25 years, so that St. George's Hospital would again be able to take its prominent place among the London schools, despite any numerical restriction implied by the reception only of students ready to enter upon their clinical work. The financial statement of the treasurer, Lord Greville, was also more favourable than many of the hearers had expected, though, as with many of the hospitals, a deficit, he feared, would have to be faced during the next year. Sir Isambard Owen's health was given by Sir Squire Sprigge, who outlined the great part in the development of the education of the country which had been played by Sir Isambard Owen in his work at the Universities of Wales, Durham and the Newcastle Colleges, and Bristol. The proceedings closed by the thanks of the company being extended to the secretaries of the dinner and with an impromptu appendix in the form of an amusing speech from Dr. W. S. Fox.

The *King's College Hospital* Past and Present Students' dinner was held on Oct. 1st at the Connaught Rooms. The chair was taken by Mr. Charles P. Childe, F.R.C.S., who was supported by Viscount Hambleden (chairman of the committee of management), and by many members of the honorary staff of the hospital. The gathering included over a hundred members of the school drawn from many different school years. The Chairman, in proposing the toast of "King's College Hospital," delighted his audience with reminiscences of his student days at the old hospital. He told of the many slums and landmarks in the neighbourhood (from which the old hospital drew its clinical material), which had now been swept away and replaced by the fine buildings adjacent to the Kingsway Estate. In those days King's occupied a high position in both work and sport, and the speaker, by a comparison of the activities of those days with the achievements of the past few years, showed that these traditions were being worthily maintained. Viscount Hambleden, in responding, assured the company that the student spirit was still there, and that it was extraordinarily alive on some occasions. He announced the decision of the Council of King Edward's Hospital Fund for London to pay off the remainder of the building debt on the hospital, which amounted to £16,000, and to contribute during the next five years the sum of £15,000 for the purpose of opening 40 fresh beds. Fourteen beds had been added already, and in November another complete ward of 26 beds would be reopened. The remainder of the evening was devoted to the renewing of old friendships. The success of the dinner was due to Dr. Ernest Playfair and Dr. Godfrey de Bec Turtle, who carried out the arrangements.

Westminster Hospital Old Students' Dinner.—On Thursday, Oct. 2nd, the first old students' dinner since the reopening of Westminster Hospital was held in Oddenino's Restaurant, Regent-street, W. The chair was taken by Sir Edward Pearson, chairman of the House Committee, and the assembly numbered over 100. In giving the toast of "The Hospital and the Medical School," the Chairman commented on the bright outlook for the future of the hospital, which last year had seemed somewhat gloomy. The hospital was now open again with new equipment and extra beds, and private wards had been adopted as part of the alterations. He paid a tribute to the work of the treasurer and of the Dean, Dr. A. S. Woodwark. The Chairman emphasised the advantages of a small medical school in keeping the staff and the students in close touch with one another. Dr. Woodwark replied. Dr. Hildred Carlill then proposed "The Past and Present Students," and in the course of his speech he made the gratifying announcement of a gift to the School of Medicine from his uncle, Mr. A. J. H. Carlill, of £20,000 towards the establishment of a pathological unit to commemorate the late Dr. J. B. Carlill, father of the donor. The offer was made conditionally on the school obtaining assistance from the University Grants Committee of the Treasury comparable with that afforded to units of medicine and surgery established elsewhere and on the school obtaining also the approval and coöperation of London University and the consent and support of the House Committee of Westminster Hospital. Dr. H. B. Brackenbury replied to the toast on behalf of the past students, and Mr. Rubra spoke for the present students. "Our Guests" was given by Mr. E. Rock Carling and responded to by Sir Robert Hudson. Mr. William Turner proposed "The Chairman." Among those present were Sir H. Mallaby Deely, Mr. H. J. Waring, Dr. Ainley Walker, Mr. A. E. Marshall (chairman of the Medical School Committee), Sir James Purves-Stewart, Sir H. Bryan Donkin, Sir F. de Havilland Hall, the Rev. Costley White, Sir J. Wormald, Mr. W. G. Spencer, Dr. S. Monckton Copeman, and Mr. George Cowell.

University College Hospital.—The dinner of the Past and Present Students of University College Hospital, which was postponed, is to take place on Friday, Oct. 24th, at 7.30 P.M., at the Hotel Cecil. Tickets can be obtained from Mr. Gwynne Williams and Prof. T. R. Elliott at the Medical School.

LONDON HOSPITAL MEDICAL COLLEGE.—The University Scholarship in Anatomy and Physiology (value £75), open to students of the Universities of Oxford and Cambridge, has been gained by Mr. J. G. A. Davel, of Trinity College, Oxford. The Epsom scholarship (free medical course) has been awarded to Mr. C. E. H. Turner.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A course of nine lectures on the Health of the Commonwealth will be delivered in the lecture hall of the Institute, 37, Russell-square, London, W.C. 1, on consecutive Wednesdays at 4 P.M., commencing Oct. 15th. The first lecture will be given by Sir William Milligan on Physique in Relation to National Efficiency, and announcement of the others will be made in our Medical Diary. The Harben lectures will be delivered by Prof. E. L. Collis on Nov. 24th, 25th, and 27th, at 4.30 P.M. He will deal with Phthisis and Industrialism (National and Occupational), with reference to other infectious diseases. All who are interested in medico-sociological problems are invited to attend these lectures.

SCOTTISH BOARD OF HEALTH CONSULTATIVE COUNCILS.—The Scottish Board of Health have made the following new appointments to their several consultative councils: (1) Medical and Allied Services: Prof. J. R. Currie, University of Glasgow; Mr. A. Gofton, F.R.C.V.S., Chief Veterinary Inspector, Edinburgh; Dr. G. R. Livingston, Dumfries; and Prof. B. F. Watson, University of Edinburgh. (2) National Health Insurance (Approved Societies' Work): Mr. J. G. Barry, Glasgow; Miss Jean Coutts, Aberdeen; and Miss Jobson Stirling. (3) Local Health Administration and General Health Questions: Bailie P. J. Dollan, Glasgow; Mr. A. Findlay, Aberdeen; Mr. Hugh Fraser, Inverness; Bailie Simon G. Fraser, Dundee; and Mr. M. A. Reynard, Clerk to Parish Council, Glasgow. (4) Highlands and Islands: Mr. J. G. MacDonald, Inverness; and Mr. Hugh Miller, Stornoway.

RETIREMENT OF DR. E. W. HOPE.—In an announcement of his impending resignation (THE LANCET, Sept. 6th, p. 501) some account was given of the great work done by Dr. Hope for public health in general and for the City of Liverpool in particular. At a meeting of the

Liverpool City Council on Oct. 1st the Health Committee officially reported Dr. Hope's resignation, and a resolution was passed recording the Council's appreciation of the excellent services at the health department rendered by him for 40 years, during 30 of which he was medical officer of health. In proposing the resolution, Sir Archibald Salvidge described Dr. Hope as one of the most valuable public officials that Liverpool or any other corporation in the country had ever possessed. He has been consulted by many Royal Commissions and Government departments, and the French Government has conferred upon him the Order of Officier de l'Instruction Publique. Dr. Hope, we learn, is at present retaining the chair of public health at the University of Liverpool.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.—The new biochemical department of the hospital will be open for inspection on Thursday, Oct. 23rd, at 3 P.M., when visitors will also be free of the enlarged pathological laboratories and the wards of the hospital. There will be exhibits of scientific instruments in both departments.

MISSIONS TO LEPERS.—Mr. Robert J. Cochrane, M.B., Ch.B. Glasg., son of Dr. Thomas Cochrane, founder of the Union Medical College in Peking, an institution which the Rockefeller Foundation has now made one of the great medical colleges of the world, will be sailing shortly for India and the Far East in connexion with the growing work of the Missions to Lepers. He expects to study the methods of the Calcutta School of Tropical Medicine during the coming autumn in final preparation for world-wide specialisation in leprosy.

CHADWICK LECTURES.—The Chadwick Lecture programme for this autumn includes lectures in London on Defective Hygiene and Child-life, with special reference to the effect produced on growth and development of children by town dwelling and slum areas, by Dr. Lawson Dick; Rats, by Mr. Mark Hovell, F.R.C.S.; Smoke, with a review of its causes, its effects on vegetation, fabrics, masonry, and metal work, and its influence on health and the death-rate, by Prof. J. D. Cohen, F.R.S.; and Antenatal and Postnatal Child Physiology and Hygiene, by Dr. W. M. Feldman, F.R.S. Each lecture will be illustrated either by epidiascope or lantern slides, and among the chairmen will be Sir William J. Collins, chairman of the Chadwick Trustees, Sir James Crichton-Browne, and Sir Frank Baines. Further information about these lectures, which will be free to the public, may be obtained of the secretary, Mrs. Aubrey Richardson, O.B.E., at the offices of the Trust, 13, Great George-street, Westminster.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The following scholarships have been awarded for 1924: *Entrance Arts Scholarships:* First (value £50), J. A. G. Bird (Cheltenham College); second (value £50), J. G. Dathan (Cranleigh). *Entrance Science Scholarships:* First (value £150), T. H. Wilson (Merchant Taylors' School); second (value £60), A. M. Easton (Whitgift Grammar School). *Entrance University Scholarship* (value £100): C. I. Tuckett (Rugby, and Trinity College, Cambridge); Proxime Accessit: V. B. Wigglesworth (Repton, and Gonville and Caius College, Cambridge). The William Tite Scholarship (£25) has been gained by H. C. Trowell (Reigate Grammar School).

The Old Students' dinner will take place at the Princes' Restaurant, Piccadilly, on Friday, Oct. 24th, at 7 P.M. for 7.30. The chair will be taken by Mr. Seymour Taylor, M.D., C.M. Aberd., F.R.C.P. Lond. The price of the dinner, inclusive of stewards' fee, is 15*s.*, to be paid at the Princes' Restaurant.

THE LATE MR. JOHN QUILLER ROWETT, LL.D.—The name of Mr. Rowett, whose death occurred under tragic circumstances on Oct. 1st, has been associated in the last few years with many lavish gifts to the cause of scientific research. Himself a business man, he had a deep sympathy with the advancement of many spheres of scientific work. His name will be remembered in connexion with the financing of the *Quest* expedition under Sir Ernest Shackleton. Most of all, however, Mr. Rowett's interests lay along the lines of medical and agricultural research. It was largely through his generosity that investigations were set going at the Middlesex Hospital—investigations which have already considerably advanced our knowledge of the origin of dental caries. At his farm in Sussex, Mr. Rowett carried out extensive researches in practical agriculture. His two interests were happily united in the founding of the "Rowett Institute of Research in Animal Nutrition" at Aberdeen. This institute consists of well-equipped biochemical, physiological, and bacteriological departments, together with an experimental farm. Scientific research in this country is the poorer for the untimely death of one who viewed it from an enlightened standpoint.

Sir Archibald Garrod has been appointed by the Home Secretary to be a member of the Advisory Committee on the Administration of the Cruelty to Animals Act, 1876, in the place of Sir Bryan Donkin, who has resigned.

Dr. J. F. E. Bridger, Principal Civil Medical Officer, has been appointed an official member of th Legislative Council of Ceylon.

HARVEIAN SOCIETY OF LONDON.—A clinical meeting of this Society will be held at the Paddingto Green Children's Hospital on Thursday, Oct. 16th, a 4.30 P.M.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The sittings of the Royal Commission on Nationa Health Insurance will be resumed on Oct. 16th. Any persons or bodies desiring to submit evidence are invited to communicate with the Secretary of the Commission, Mr. E Hackforth, Ministry of Health, Whitehall, London, S.W. 1.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 13th.

WAR: at 5 P.M.
Presidential Address:
Surgeon Vice-Admiral Joseph Chambers, R.N.: Hospita Ships in Peace and War.

Tuesday, Oct. 14th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Presidential Address:
Prof. A. J. Clark: "Quacks."

Wednesday, Oct. 15th.

HISTORY OF MEDICINE: at 5 P.M.
Presidential Address:
Dr. J. D. Rolleston: Bretonneau: His Life and Work.
Exhibit:
Mr. J. E. H. Roberts: Two (?) Presentation Copies o Wiseman.

Thursday, Oct. 16th.

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases:
Mr. H. C. Samuel: Case for Diagnosis.
Dr. H. Semon: Sarcoid.
Dr. H. W. Barber: (1) Multiple Epitheliomata of the Ski (2 cases); (2) Parapsoriasis.
Mr. J. E. R. McDonagh: Xanthoma (Diabetic).
Paper:
Dr. Prosser White: Bakers' Eczema; a Clinical an Experimental Inquiry.

SOCIAL EVENING: at 8.30 P.M.
Fellows, Members of Sections, and their friends will b received by the President, Sir StClair Thomson, a 8.30 P.M.
Dr. W. T. Grenfell, C.M.G. (Labrador) will give a brie discourse on Medicine in a Corner of the Empir (with lantern illustrations) at 9.30 P.M.

Friday, Oct. 17th.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Presidential Address:
Dr. Stanley Melville: "Taking Stock."

MEDICAL SOCIETY OF LONDON, 11, Chandos-street Cavendish-square, W.
MONDAY, Oct. 13th.—8 P.M., Annual General Meeting. 8.30 P.M., Ordinary Meeting. Dr. E. M. Callender: President's Address on Medical Memories.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
Lecture arranged by the FELLOWSHIP OF MEDICINE and open to all members of the medical profession. Friday, Oct. 17th, 5.30 P.M.: Cancer of the Bladder, by Mr. J. Swift Joly.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C. Special Intensive Course in Laryngology, Rhinology, and Otology, beginning on Monday, Oct. 13th.—BETHLEM ROYAL HOSPITAL, St. George's-fields, S.E. Lecture Demonstrations on Tuesday and Thursday, at 11 A.M., by Dr. Porter Phillips and Dr. Thomas Beaton.—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens. Tuesday and Thursday, Clinical Demonstration on Tropical Medicine, at 2 P.M., by Dr. G. C. Low and Dr. Manson-Bahr.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

Saturday, Oct. 18th.—4 p.m., Sir Archibald Garrod: Harveian Oration.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

Friday, Oct. 17th.—5 p.m., Prof. Arthur Keith: Museum Demonstration: Specimens illustrating Evolution of the Human Heart.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Oct. 13th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 p.m., Dr. Scott Pinchin: Medical Out-patients. 2 p.m., Mr. Bishop Harman: Eye Dept.

Tuesday.—11 a.m., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Wednesday.—12.15 p.m., Dr. Burnford: Medical Pathology. 2 p.m., Dr. Owen: Medical Out-patients. 2 p.m., Dr. Pernet: Skin Dept.

Thursday.—11 a.m., Mr. Simson: Gynæcological Ward Visit. 12 noon, Medical Registrar: Clinical Methods. 2 p.m., Mr. MacDonald: Genito-Urinary Dept.

Friday.—10 a.m., Mr. Simson: Gynæcological Operations. 12 noon, Surgical Registrar: Surgical Pathology. 2 p.m., Mr. Vlasto: Throat, Nose, and Ear Dept.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

KING'S COLLEGE HOSPITAL LISTERIAN SOCIETY.

Wednesday, Oct. 15th.—8.30 p.m., Inaugural Address at King's College Hospital by Prof. Sir StClair Thomson: Shakespeare as an Aid to the Art and Practice of Medicine.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS POST-GRADUATE COURSE, Victoria Park, E.

Monday, Oct. 13th, to Friday, Oct. 17th, mornings and afternoons.

Wednesday.—3.30 p.m., Dr. A. Goodman Levy: (*a*) General Anæsthesia in Tuberculosis; (*b*) the Significance of Cyanosis in Pulmonary Disease.

Friday.—2 p.m., Lantern Lecture, Dr. Clive Riviere: Artificial Pneumothorax Treatment and its Complications.

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.

Thursday, Oct. 16th.—4 p.m., Dr. Harrison: Interpretation of Sugars.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.

Tuesday, Oct. 14th.—5 p.m., Dr. S. E. Dore: Physiology.

Thursday.—5 p.m, Dr. J. M. H. MacLeod: Morphology and Histopathology of Elementary Lesions.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 p.m.)

Week commencing Oct. 13th.—At the Children's Hospital: Dr. Murray Bligh: Common Forms of Mental Defect in Children, with cases. At the Southern Hospital: Dr. Macalister: Rheumatism and Some Rheumatoid Conditions. At the Northern Hospital: Dr. Cunningham: Pernicious Anæmia. At the Stanley Hospital: Mr. Heaney: Circulatory Diseases of the Extremities. At the Royal Infirmary: Mr. Litler Jones: Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, Oct. 14th.—4.15 p.m., Dr. A. Ramsbottom: Differentiation of Anæmias.

Friday.—4.15 p.m., Prof. R. B. Wild: The Treatment of Pain.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.

(Course of Lectures on the Health of the Commonwealth.)

Wednesday, Oct. 15th.—4 p.m., Sir William Milligan: Physique in Relation to National Efficiency.

Appointments.

Mussen, A. A., M.D. Dub., D.P.H. Camb., has been appointed Medical Officer of Health for the City of Liverpool in place of Dr. E. W. Hope, retired.

Overton, Sibyl Gertrude, M.B., B.S. Lond., D.P.H., an Inspector of Factories and Workshops.

Webb, Beatrice, M.D., Medical Officer to the Women's Training Department, University of London.

Wells, A. Q., M.B., B.Ch. Oxf., Certifying Surgeon under the Factory and Workshop Acts for the Eyam District of the county of Derby.

Manchester Royal Infirmary: Newell, R. L., F.R.C.S. Eng., Surgical Tutor; Hickson, S. K., M.B., Ch.B. Manch., M.R.C.P. Lond., Second Medical Registrar; Kahn, Miss, M.B., Ch.B. Manch., Clinical Assistant.

Vacancies.

For further information refer to the advertisement columns.

Birmingham, Queen's Hospital.—Third P. for Out-patients. £50.

Bristol Royal Infirmary.—Hon. Dermatologist and Hon. Asst. S. to Ear, Nose, and Throat Dept.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. for six months. £62 10s.

Durham County Council Education Committee.—Asst. Sch. M.O. £600.

Durham, Richard Murray Hospital, Blackhill.—Res. M.O. £400.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Morning and Afternoon Cas. O.'s at rate £120. H.S. at rate £125. Also Res. M.O. £200.

Gloucestershire Mental Hospitals, Coney-hill, Barnwood.—Jun. Asst. M.O. £350.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. for six months. £75. Also H.P. £50.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Reg. £100.

Johannesburg, S. African Institute for Medical Research.—Bacteriologist.

London Hospital Dental School, E.—Hon. Anæsthetist.

London Temperance Hospital, Hampstead-road, N.W.—Med. Reg. 40 guineas.

Manchester Babies Hospital, Burnage-lane, Levenshulme.—Res. M.O. for six months at rate £125.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S., Jun. H.P. and H.S., two Cas. O.'s for six months. Each £50. Also Asst. P.

Monmouthshire County Council.—Two Asst. M.O.'s. £500.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Anæsthetist. £25.

Queensland Government.—Director of Laboratory of Microbiology, &c., Dept. of Public Health, Brisbane. £750.

Royal Chest Hospital, City-road, E.C.—P.

Royal Free Hospital, Gray's Inn-road, W.C.—Med. Reg. £250.

Royal Naval Medical Service.—Surg. Lieuts. 25s. per day.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. S. and Hon. Gynæcologist for Out-patients.

St. Thomas's Hospital.—Pathologist. £500.

Stoke-on-Trent, North Staffordshire Infirmary.—Jun. H.P. £125.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Cas. O. and R. £150.

Wednesbury, Borough of.—M.O.H., &c. £800.

West Ham County Borough, Dagenham Sanatorium.—Asst. Res. M.O. £350.

Westminster Hospital, Broad Sanctuary, S.W.—P. for Dis. of Children.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Mevagissey, Cornwall; Westbury, Wiltshire; Haworth, Yorks (W.R.).

Births, Marriages, and Deaths.

BIRTHS.

Bridge.—On Sept. 29th, the wife of Capt. G. A. Bridge, M.C., R.A.M.C., Southsea-terrace, Portsmouth, of a daughter.

Jones.—On Sept 17th, the wife of W. Henry Jones, M.B., B.S. Lond., South Hackney, of a son.

Judson.—On Sept. 28th, the wife of Dr. J. E. Judson, of Portscatho, Cornwall, of a son.

Spong.—On Sept. 15th, at Exmouth, the wife of Major W. A. Spong, R.A.M.C., of a daughter (stillborn).

MARRIAGES.

Harries—Dickson.—On Sept. 30th, at St. Paul's Church, Bournemouth, Ivor Ewart Harries, M.R.C.S., L.R.C.P. Lond., to Norah Constance, younger daughter of Colonel W. D. Dickson, J.P., and Mrs. Dickson, of Southill, Dean Park, Bournemouth, formerly of Kildimo House, Co. Limerick.

Knowles—Inman.—On Oct. 1st, at Christ Church, Hampstead, Squadron-Leader R. H. Knowles, M.D., D.P.H., Royal Air Force, to Gladys Eyre, youngest daughter of Mr. and Mrs. Henry Reid Inman, The Grange, Hampstead Heath.

Ramsey—Jarvis.—On Sept. 25th, at Oadby Parish Church, Leicester, George Alexandar Ramsey, M.D., of London, Ontario, to Elsie Clara, daughter of Mr. and Mrs. W. G. Jarvis, Clivedon, Manor-road, Leicester.

Soady—Hugo.—On Oct. 1st, at the Church of the Holy Cross, Crediton, Devon, William Henry Soady, L.R.C.P. & S.I., of Crediton, to Gladys Katherine Hugo, only daughter of the late Edward Hugo, M.R.C.S., L.R.C.P., of Gillingham, Kent.

Wilson—Braxton Perres.—On Oct. 1st, at Marylebone Parish Church, Ronald Edmund Wilson, M.R.C.S., L.R.C.P., to Rosaleen Helen, younger daughter of the late Robert Braxton Perres, of Staplers, Isle of Wight.

DEATHS.

Baker.—On Oct. 4th, at Ceely House, Aylesbury, John Charles Baker, M.B., M.R.C.S., late Surgeon Captain, 2nd Bucks Battalion, O. and B.L.I., aged 62 years.

Harper.—On Oct. 4th, at Adrian-square, Westgate-on-Sea, Robert Russell Harper, L.R.C.P. Lond., M.R.C.S. Eng., in his 71st year.

Parkin.—On Oct. 1st, at Carnaby Chalet, Cardigan-road, Bridlington, Alfred Parkin, M.S., M.D. Lond., F.R.C.S.

Russell.—On Oct. 4th, at Downview-road, Worthing, George Ireland Russell, M.R.C.S., L.S.A., of Gravesend and N. Zealand, in his 86th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

"HEALTH WEEK."

"HEALTH WEEK," which is just over, would now appear to have become an established institution. As in previous years, the opportunity was taken of calling the attention of the general public to some of the more fundamental principles of health. The Health Week Committee issued for the occasion a number of "sermonettes," or rather texts for sermons, on such topics as coal smoke and health, with notes on the Public Health (Smoke Abatement) Bill now before the House of Lords; the Sunlight League formed in May, 1924; the value of fruit and vegetables; the care of the teeth, and so on. Education of public opinion on these and similar matters is apt to be a somewhat slow process, but the committee wisely insisted on the value of health teaching in schools. It may be recalled that at a conference of headmasters, held last December, a resolution was passed to the effect that it was desirable that some systematic teaching on the subject of hygiene should form part of the instruction of every boy and every girl during their time at school, thus laying a solid foundation in health knowledge for the whole nation. The efforts of the Health Week Committee, under the chairmanship of Prof. A. Bostock Hill, are deserving of the cordial support of the medical profession.

During the week Mr. Arthur Greenwood, M.P., Parliamentary Secretary of the Ministry of Health, gave an address at Stepney in which he attributed the considerable decline in the general death-rate and especially in the infant mortality-rate in recent years to the work of the public health service. He stated that during last year the amount of sickness and disablement amongst insured persons for which benefit was paid totalled 20½ million weeks or 394,000 years. Unemployment due to sickness was no less than a third of the unemployment arising from bad trade. Over twice as much time was lost last year through sickness as from industrial disputes. And even these appalling figures did not disclose the whole truth as they did not include the first three days of sickness for which no benefit was paid, nor the sickness amongst uninsured workers, and they omitted the loss of working power owing to premature deaths.

NEW OPEN SPACES FOR LONDON.

IN THE LANCET of Sept. 20th, p. 609, we commented on the broader outlook that is being taken from the health point of view with regard to London's parks and open spaces, and evidence of further progress in this direction comes from the work of the Metropolitan Public Gardens Association. At a meeting of this Association on Oct. 1st, at Denison House, Vauxhall Bridge-road, the Earl of Meath, the chairman, presiding, it was stated that the Open Spaces Bill promoted by the Association and other bodies had passed second reading in the House of Commons, and that a Bill to extend powers to plant trees in arterial and other roads had been introduced by the Ministry of Transport. A report was received that the laying out of Princes-square, Stepney, to which the Association largely contributed, had been completed and that the ground had been opened to the public. It was stated that Middlesex County Council had granted £5000, the balance of the amount required towards the purchase of 31½ acres of woodland at Ken Wood. Progress was reported in regard to schemes to acquire as public open spaces areas on Shooters Hill and Streatham Common, also the laying out and opening of Boston Manor Park, Brentford. Attention was drawn to the proposed removal of Bethlem Hospital from its present site in Southwark, and it was regarded as most important that steps should be taken to secure at least some portion of its site for public use.

YEAR-BOOK OF SCIENTIFIC AND LEARNED SOCIETIES.

WE received some time ago from Messrs. Charles Griffin and Co., Ltd. (Exeter-street, Strand, London, W.C.), a copy of the fortieth annual issue of the Year-book of the Scientific and Learned Societies of Great Britain and Ireland (389 pages, price 15s.). This is a record of the work done in science, literature, and art during the session 1922–23 by numerous societies and Government institutions, compiled from official sources. It was hoped when the year-book was founded 40 years ago that it would become in time the trusted desk-companion of the scientific worker as well as of the industrialist (in the widest possible sense) who wished to keep in touch with the advances made in his particular industry; this aim has been rendered possible by setting out from year to year the titles of papers read before scientific institutes throughout the kingdom. Such a list is of value in showing the direction which current research is taking, and the reader will not be led astray by errors or omissions, for on every page of the year-book is the mark of careful and thoughtful editing. We have greater confidence in making this comment as the book has intentionally lain on the library table for a number of weeks in order to test its accuracy and comprehensiveness. It is the more indispensable now that the Joint Board of Scientific Societies, after a brief existence, has ceased its operations. Conducted on its present lines this year-book will continue to fill a useful place on the shelves of the reference library.

OBSTINATE CONSTIPATION.

To the Editor of THE LANCET.

SIR,—I should be grateful if any of your readers would suggest appropriate treatment for the following case. The patient is a boy, aged 3 years, with a history of chronic constipation. He has recurrent rises of temperature and at times the rectum is prolapsed. Patient has been in the habit of taking two tablespoonfuls of liquid paraffin per day, but obtains a motion only every other day. He has now been put on a mixture containing sod. sulph., tr. bellad., and infus. sennæ, three times a day, before food. He is also given Nujol twice a day and one teaspoonful of cascara cordial at night. Abdominal massage has also been tried, but the bowels are still obstinate and prolapse recurs at times.

I am, Sir, yours faithfully,
CLINICAL.
Oct. 6th, 1924.

EMOTIONAL ARREST OF HÆMORRHAGE.

To the Editor of THE LANCET.

SIR,—An instance of what I take to be secretion of adrenalin as a result of stimulation by anger or fear may prove of interest to some of your readers. Whilst on a wild-fowling holiday in Ireland recently, I had a conversation with a gamekeeper who was apparently in great demand locally as a trimmer of fighting-cocks. Part of this trimming consists in cutting the comb—a process attended by considerable hæmorrhage. As soon as the comb is cut, the practice is to bring another fighting-cock near the first, when in most cases the bleeding stops. He added that, if the bleeding did not cease, the opinion was formed that the bird in question would never make a fighting-cock owing to lack of "spirit."

I am, Sir, yours faithfully,
SPORTIVUS.
Oct. 6th, 1924.

GREEN APPLES.

To the Editor of THE LANCET.

SIR,—With reference to your article last week discussing the cause of colic following the consumption of green apples, I think the mechanical theory there outlined must be substantially the correct one so far as unripe fruit goes. Much of the pain of dyspepsia is located in the pylorus, and the passage of hard lumps of material of any sort through the pylorus causes the characteristic "cannon-ball" sensation; the same sensation is often experienced when a duodenal tube is being passed. Green apples would, of course, be very difficult to disintegrate; the same fruit when cooked has no such effect, so that the pain must be the result of mechanical and not chemical condition of the food. The question might arise, "Why do not green apples cause pain in all cases?" The answer is that the motility of the pylorus and its sensitivity are not always the same. The best condition for pain would be a highly motile and sensitive pyloric canal. Usually these two would go together. The same applies to the intestine.

I am, Sir, yours faithfully,
C. LOVATT EVANS.

Physiological Laboratory, St. Bartholomew's Medical
College, E.C., Oct. 6th, 1924

AN UNGRATEFUL PATIENT.

A SOUTH AFRICAN correspondent informs us that at the Barberton Criminal Sessions, Transvaal, on Sept. 11th, a native named Sebob Fanee was sentenced to death for murdering a native witch doctor named Magesa, and Magesa's son, aged 10. As a motive for the crime it was asserted that Fanee resented a request by the witch doctor for a beast in payment of doctoring services rendered. It was also stated that another witch doctor and his wife had instigated the crime.

Burns.—It is difficult to say why the use of ambrine in the treatment of burns has almost died out. One reason may be that to get good results it is necessary to carry out a special technique, perfectly simple, but still special. It is easy to heat the stuff too hot and so make things worse than they were. Its ideal use is where there is a large series of cases to deal with, all of which can be treated in exactly the same way.

D. A. H.—So far as we know, there is no institution in London where treatment of cardiovascular cases is given on strict Nauheim lines. Such a clinic existed before the war, where this and other forms of physical treatment were administered under medical supervision. Various forms of effervescing bath are available for home use.

The Evolution
OF
NEUROLOGY AND ITS BEARING ON MEDICAL EDUCATION.

A Presidential Address to the Neurological Section of the Royal Society of Medicine, delivered on Oct. 9th, 1924,

By E. FARQUHAR BUZZARD, M.D. Oxf.,
F.R.C.P. Lond.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL.

The approach to a presidential chair, which, if it could speak, would claim among its past occupants such men as Hughlings Jackson, David Ferrier, Victor Horsley, W. H. Gaskell, Sherrington, and Head, to name but a few of the most illustrious, is necessarily attended by a sense of inferiority difficult to reconcile with the pride of being chosen to fill such a position. The sense of inferiority is in no way mitigated by finding myself following directly in the footsteps of Dr. James Collier, whose successful term of office has just expired, and whom I always gratefully regard as my first neurological guide and teacher. It was my good fortune to find him in residence at Queen-square when I went there as a clinical clerk five-and-twenty years ago. In those days his boundless energy was only equalled by his unremitting patience, his willingness to impart knowledge, and his power of imbuing others with some of his own enthusiasm. We all know how tenaciously these characteristics have clung to him throughout the intervening years.

But the initiate at Queen-square of that time had more than enough to stimulate his enthusiasm. Every afternoon there were rounds with Hughlings Jackson, Bastian, Horsley, Gowers, or Ferrier. Mornings were spent note-taking in the wards and spare hours, often spreading far into the night, were devoted to work in the pathological laboratory under the safe guidance of Batten. It is no matter for surprise that we found the climate of Bloomsbury exhilarating and came to regard the hospital as a neurological Olympus. The gods have mostly left us, but their shrine remains as a monument to their labours and an inspiration to all pilgrims who pass that way.

In choosing my subject I have been largely influenced by recollections of the delights and difficulties of those days and by the desire, long entertained, to compare them with the conditions now governing the work and outlook of those on the threshold of our profession. Although comparisons are reputed to be odious, they may not be always uninstructive, and the present can never afford to neglect the lessons of the past. It is necessary, therefore, to my purpose to recall not only the actual work on which neurologists were engaged at the end of the last century, but the immediate aims and objects of their task. It will be necessary, too, to contrast these with our work and objectives of to-day and finally to consider how this comparison affects the problem of medical education.

For reasons which it would be superfluous to recite, my argument will be based on the development of neurology, but, if sound, it must apply with equal force to that of the whole of internal medicine. I hold that neurology is the eldest of the medical ologies, not perhaps by right of primogeniture, but because of its exceptional precocity. This precocity arises from the fact that even in infancy its anatomical elements were more readily cemented together by physiology than was the case with any other branch of medicine with the result that, contrary to all accepted ideas, its problems have become progressively more straightforward and easier of solution than those of its brethren. In other words, the science of neurology is approaching exactitude in regard to the relationship of symptoms and physical signs to disorders of function and changes in structure.

Aims and Objects of Nineteenth Century Neurology.

During the last quarter of the nineteenth century the edifice of neurology was in process of construction. Those engaged on the task were busy finding the necessary stones, labelling them and placing them, perhaps haphazard, in some kind of position. The foundations were chiefly composed of anatomical facts interspersed with meagre physiological details by way of mortar. The superstructure gradually grew in height as disease after disease was named and laid in place, but in the absence of any considered, draughted plan the architecture was faulty and lacking in proportion or design. A scientific edifice never attains completion, and this one has proved no exception to the rule. It has constantly called for renovation and repairs, in the course of which there has been much demolition and reconstruction. Here and there an arch has withstood the test of time, but many have rotted under exposure or sunk beneath the weight of experience. Nevertheless, we can be proud of our edifice, incomplete as it is; its foundations are of the right material, and every year sees them widened and solidified by additions to our knowledge of nervous anatomy and physiology.

In the days to which I have referred neurologists were, for the most part, collectors. Their interest was largely absorbed in finding and cataloguing undiscovered diseases, much as an entomologist or stamp collector seeks and classifies new specimens. The records of the Neurological Society testify to this enthusiasm, and probably the evolution of neuropathology has only followed that of all other sciences. The zeal for collecting precedes and breeds the spirit of inquiry.

The Altered Outlook of To-day.

And thus have time and increasing knowledge altered our outlook. The completed article in the shape of disease, even if it be a new specimen, inspires comparatively little interest in the minds of many of us, unless it throws light into the dark corners of pathology. Our collection lies neglected on the shelf and, if something is added to it, the addition is made with little pride. We have come to realise how small is our knowledge of health and healthy living function, and how imperative it is to recognise the smallest deviation from normal structure and function if we are to understand the natural history of disease, and to solve the problem of its prevention or frustration. This change is well illustrated in the proceedings of our section, as it is in those of other sections, and contributes in no small degree to the anxieties of our secretaries. Material for meetings and discussions is scarce. We are digging among roots deep in the ground, not merely culling the blossoms on the surface. The work is laborious, the soil requires careful sifting, and the buried treasure needs expert handling and critical inspection before it is ready to be appraised.

The history of ill-health now means much more to us than the unhealthy patient, and when unravelled is more helpful to us, and indirectly to the unfortunate sufferer, than prolonged contemplation of the ravages produced by disease. The latter may be easily detected by the eye of the trained observer; for the former we have to depend not only on our own skill in cross-examination but on the veracity, memory, and intelligence of others. In no branch of medicine has this truth been more strikingly displayed than in that of psychopathology, although it applies with equal force to every form of organic disorder. Unfortunately, perhaps as the result of faulty training or perhaps for economic reasons, its vital significance has not yet been grasped by the bulk of our profession.

To apply a sporting analogy to our past and present conceptions of morbid processes and our ways of dealing with them, we might compare the earlier one with golf and the later with cricket. The golf ball is an article provided, painted, and marked for us, and placed stationary in front of our eyes to hit. A physician may miss it; a surgeon may slice it; only a quack may drive it out of bounds or into a hazard without penalty. The cricket ball, hidden at its origin, comes from a distance and is deceptive in its flight. Its swerve, length, and break require watching, and the danger of complications and sequelæ in the shape of fieldsmen must be avoided if the wicket is to remain intact. Prolonged experience of the bowler's wiles may enable the batsman to play the ball with increasing confidence, but the danger of being bowled, stumped, or caught out can never be very far away. Surely we need more cricketers and fewer golfers in our ranks!

But the aspect of medicine has altered in other ways than that of perspective. Hard lines are disappearing, values are being rectified, and better composition is leading to improved grouping of its elements. In its early days a specialised off-shoot, like neurology, is apt to be isolated from its fellows; only as it approaches maturity is its complete dependence on the main trunk and close relationship with all other branches clearly determined. Thirty years ago neurologists were engrossed with clinical pictures and morbid anatomical specimens carefully preserved and mounted. A list of symptoms, a bedside photograph, and an elaborate series of microscopical slides served to illustrate and schedule a disease. Now it is to biochemistry, to bacteriology, to endocrinology, or to psychology that we look for light and understanding. Scarcely a day passes without the desire for a more intimate knowledge of the anatomy and physiology not only of the nervous system, but of every organ forming part of the human frame. Our thoughts are centred on the problems of pathogenesis, and the field of our inquiry extends far beyond the limits of our speciality.

It is not my intention for one moment to depreciate the work which has been done in the past or even to cavil with the inevitable course of events. In no other way could our knowledge have accumulated as it has done in the last 50 years, and no one could have foretold the course and direction of the paths and by-paths which are now to be traced on the map of medicine. But the time has come when this map requires careful reconsideration from the point of view of the medical student and medical education. It has become a maze rather than a map, a maze from which innumerable superfluous names and countless blind alleys must be eliminated in order that the main roads may stand out clearly for the student of medicine to see and follow.

NECESSARY REVISION OF THE MEDICAL CURRICULUM.

As an examiner I have been appalled at the amount of material which the examinee is expected to ingest and assimilate, and as a teacher I have become more and more convinced that our whole medical curriculum requires revision. Assuming that there has been, during the past 25 years, a great change and advance in our conception of disease, such as I have attempted to indicate, can it be said that our system of education has been modified to meet the situation? To some extent it has, but chiefly by way of patchwork and excrescences. Insistence on the importance of a particular speciality has led to a set period of time being devoted to its study, and the multiplication of these courses leaves the student no time to view medicine stereographically or to realise that principles rather than isolated facts are what he requires for his professional equipment.

In my own time I was taught physiology and anatomy, passed an examination in these subjects, forgot practically all I had learned, and started on new subjects called medicine and surgery. Three years' work, during which I learned much about disease and little about health, enabled me to pass another examination and qualify. A year later my steps were turned to Queen-square and my thoughts to neurology. Although I knew enough about nervous diseases to qualify, I very soon found that I had to go back to the beginning of things, re-learn the anatomy and physiology of the nervous system, and so gain, what was to me, an entirely new conception of the relationship between health and disease. As time passed one realised that this conception was one which was applicable not only to neurology, but to other branches of medicine, and that expert knowledge of the latter required the same close acquaintance with their particular aspects of anatomy and physiology.

Does the student of the present day, coming fresh to hospital wards or at the time of qualification, go through an experience which is very different? I think not. It is true that he is better trained in physiology and that his knowledge of this subject is more applicable to human life than the amphibian physiology on which I was brought up. But it is true also that the 25 intervening years have added enormously to the burden which his memory is called upon to bear. Has the divorce between physiology and anatomy, on the one hand, and medicine and surgery on the other been really annulled? I doubt it. We find the student who has recently passed a stiff examination in the former subjects confronted, for example, with a paralysed patient. He may be able to describe the bony ridges where certain muscles have their origin and insertion, even tentatively to suggest their nerve-supply, but of their function and the methods of demonstrating or investigating that function he is more often than not entirely ignorant. He knows nothing of agonists or antagonists, and muscular synergism, which he brings into play every hour of his life, has no meaning for him. He cannot describe the mechanism by which he adopts or maintains the erect position. He may be able to write a respectable essay on reflex action, but he is quite incapable of eliciting the normal reflexes from a healthy human subject.

He may recite with accuracy the muscles supplied by the oculo-motor nerve, but accommodation, convergence, and pupillary reactions are terms which convey but little anatomical or physiological significance to his mind. He has no familiarity with normal heart sounds, nor has he learned the difference between voluntary and involuntary respiration. He has read descriptions of the retina, but has never seen the fundus of an eye. He has used his voice since infancy, but has never seen a larynx in action. And yet all these gaps in his knowledge, and many others besides, do not belong to medicine or surgery, but to human anatomy and physiology.

In other words, after two or three years of studying anatomy and physiology he comes to us without any intimate knowledge of normal standards as applied to the living human being and without, therefore, the necessary data which would enable him to detect variations from the normal. And yet in the next two or three years he has so much to fill his time that there is little or no opportunity to make up this deficiency, with the result that he qualifies on such acquaintance with mature disease as is required of him and remains more or less ignorant of health and uncertain of detecting early disorders of function.

THE GOAL OF MEDICAL EDUCATION.

It may not be out of place to attempt a definition of the goal at which we all aim, or perhaps at which we ought to aim in medical education. What is the equipment which we would like to see possessed by every newly-qualified practitioner of medicine? In the first place he should be familiar with health as represented by normal structure and function, recognising, of course, that the latter are capable of considerable variations in respect to particular individuals or particular organs. In the second place he should have at his fingers' ends, and be able to carry out, all the ordinary tests employed in medicine for detecting variations from normal function. He should, for instance, be able to detect a flaw in the function of the pyramidal system, an inadequacy of renal function, or a deficiency on the part of the thyroid gland with some degree of alacrity and confidence.

In the third place he should be thoroughly acquainted with morbid processes, whether of degenerative, vascular, inflammatory, or neoplastic origin, and capable of recognising the alterations in structure which they produce. Fourthly, and this is perhaps he most important part of his equipment, he must be ntimate with the natural history of disease as illustrated by its clinical course. Lastly, he should be well grounded in the established *principles* of reatment, realising, as we must, that therapeutic measures are very unstable and dependent largely on he vogue of the moment.

For many years the student, in order to qualify, has been required to display a superficial knowledge of a number of named diseases, hastily acquired for he purpose of his examination. Examples of many he may never have met with, and his second-hand knowledge of them will have evaporated long before hey cross his path. I doubt whether any of you would disagree with me if I assert that under our present system very few newly-qualified men are dequately equipped for the practice of medicine. Fortunately, perhaps, only a minority assume really esponsible positions without passing through some ind of apprenticeship. If this is the case, I submit hat a system which has more regard for educating tudents in the essential principles of the science of medicine, and pays less attention to their knowledge f particular diseases, would provide the qualified ractitioner with sounder foundations on which to uild from experience.

When I spoke of revising the medical curriculum was referring to that period of time, five or six ears, now occupied chiefly by the study of anatomy, hysiology, organic chemistry, medicine, and surgery. The fundamental change which appears to me necesary is to remove the line of demarcation at present eparating the three former subjects from the two atter. The aim of education, put very shortly, is to imulate the natural functions of our higher cerebral evels, especially that function which enables us to ecognise similarity and difference, to distinguish soft om hard, sweet from sour, solid from fluid, square om round, smooth from rough, near from far, head om tail, good from bad, white from black, truth from alsehood, and normal from abnormal. How is it ossible to appreciate the soft, the square, the white, he truth, or the normal if we are not brought into ontact with the hard, the round, the black, the alse, or the abnormal? It is contrary to all rinciples of education as laid down by nature or xperience.

From the moment that the student enters upon the udy of anatomy or physiology he should feel that e has passed the threshold of medicine and surgery, hat he has begun his life's work, the study of the uman mind and body with all the vagaries and ills o which they are heirs. From the beginning he should e faced with living as well as dead subjects, and while is primary objective should be to learn all that is nown about normal structure and function, his task hould be made easier by opportunities for comparing he normal with the abnormal.

To take one example from the field of medicine. he study of the musculature should embrace not only he origin and insertion of muscles, their relationship o other structures and their nerve supply, but their ving function, the daily or hourly uses to which hey are put, and the methods by which their action inaction can be demonstrated. The student should ave the chance of observing at the same time—that to say, within a few hours or a few days—the limb e has dissected, a healthy living limb in action, and mbs which are paralysed as the result of lower and pper motor neurone lesions. In this way he would apidly gain an understanding of muscular action, the fference between voluntary and involuntary movement, the difference between the loss of muscle and the ss of movement, and of many simple reflex actions. or the moment the nature of the disease from which he paralysed patient suffers would not concern him. aving seen the normal and the abnormal side by side the features of each would remain fixed in his mind. He would still need his text-book of anatomy by his side, but he would stimulate his interest and solidify his memory by reading such books as Beevor's "Croonian Lectures on Muscular Movements" or Mackenzie's "Monograph on the Action of Muscles." It should not be difficult to arrange that at the same time he should be taught some neuro-muscular physiology, and become acquainted with the microscopical alterations of structure associated with Wallerian degeneration and muscular atrophy.

What applies to the musculature applies equally well to other tissues or organs. The teacher of anatomy should see that no student leaves him unfamiliar with the use of the ophthalmoscope or with the appearance of the fundus oculi. The teacher of physiology should be equally insistent on a clear understanding of the significance of diplopia and the principles underlying errors of refraction, their detection and analysis. The technique of test-meals and blood examination belong to the same department and offer similar opportunities to the student for acquiring the ability to differentiate between what is healthy and what is unhealthy.

But the expansion of anatomy and physiology does not end here. Radiology is a modern science which should be utilised early in the medical curriculum for the purpose of teaching. Long before the student comes to the wards he should be able to recognise a normal pituitary fossa from its bony outline, or a normal heart from the size and shape of the mobile shadow it casts on a screen. A series of barium meals demonstrating the normal and abnormal activities of the gastro-intestinal tract in the human subject would stimulate a live interest such as is unobtainable from the contemplation of dead abdominal viscera in the dissecting room. In short, no teacher can afford to neglect any method by which structure and function can be viewed from additional standpoints. The more sensory associations a subject can arouse in the human mind the clearer are its features and the more true is its perspective.

Mention of the human mind reminds us that the study of psychology should also begin during the physiological era of the medical curriculum. The greatest difficulties with which the practitioner is going to be confronted will be of psychological origin, and it would be well that his attention should be directed to this aspect of his work at the earliest opportunity. The study of the anatomy and physiology of the nervous system would lose none of its interest if it were associated with the digestion of a primer such as MacDougall's "Physiological Psychology."

It is not within my province to elaborate in greater detail than I have done the methods by which the student might be better educated during the first half of the five or six years of his curriculum nor to draw up any kind of time-table covering that period. I would submit, however, that when the day arrives for him to enter the wards of a hospital and to become an integral part of a medical unit or firm, he would be better equipped for the work which still awaits him before he has to face his qualifying ordeal.

Moreover, the training he has undergone should help to solve the great problem with which we, as teachers, are faced. What are we expected, or what do we hope, to teach students in the meagre period of six months allotted to the medical wards? At present we are obliged to spend much time in demonstrating what is normal in the structure and function of the living subject, in teaching how normal structure and function may be made manifest by methods as far apart as that for the preparation of a blood film and that for the elicitation of a knee-jerk. Instruments such as the stethoscope, laryngoscope, ophthalmoscope, and sphygmomanometer are placed in untrained hands and, with one exception, hardly ever reach terms of familiarity with their owners. The power of observation and the manual sensibility so necessary to the clinician have scarcely been brought into being, much less developed, so that even gross abnormalities in bodily conformation escape the student's eye or hand.

The Student's Work in His Final Months.

How little time is left over for those subjects which properly belong to these six months, which demand every moment the student can spare to them, and proficiency in which he can only acquire under the conditions of intimacy with patients appertaining to work in the wards. And what are the proper uses to which the six months should be devoted? In the first place, the student must utilise his daily opportunities for increasing his acquaintance with what is normal and abnormal in structure and function by bedside observation and laboratory research. If he has previously acquired some degree of familiarity with this aspect of his work he will be in a position to make the most of these opportunities. In the second place, he must now enter upon the study of the natural history of disease, a knowledge of which can only be acquired by the most assiduous attention to stories of ill-health, by probing their accuracy, and by attempts to give them their true interpretation. There is no part of medical work the significance of which needs more insistence on than that of history-taking. It requires endless time and patience, and the fact that it has hitherto been a task allotted to a period already overcrowded has meant that only a small proportion of students enter the profession adequately versed in the art, or appreciative of its paramount importance. That students are brought into contact with so much advanced disease in hospital wards and see so little of its early manifestations has often been urged, not without some justification, as a flaw in our system. But the significance of early manifestation would be lost without a first-hand knowledge of later developments, and the features of early manifestations can nearly always be elicited by careful history-taking.

There are two other lessons to be taught and learned during the period spent in the wards. It is the student's chance of acquiring the art of handling patients, using the term in its psychological as well as its physical sense, an art which must be taught by example rather than by precept, and one which is mastered by some men and women much more readily than by others. Finally, principles of treatment require exposition together with such detailed therapy in relation to the more common ailments as can be taught in the time at our disposal. An intelligent grasp of therapeutical principles is far more valuable than a profound knowledge of pharmacology. If the physician achieves success in regard to these four aspects of his teaching it is as much as he can expect, and success would come his way more frequently and more easily if the student were prepared for his lessons by previous training on the lines I have indicated.

As with internal medicine so it would be with the special departments. Already familiar with the methods by which the eye, the ear, and the throat are brought under inspection and able to detect variations from the normal the student would be ready to study the natural history of morbid processes as well as the physical signs and symptoms to which they give rise.

In the rough sketch which I have drawn for you of what I, and I believe many others, would regard as a forward step in medical education, there is much outline and little detail. The proposed alterations in teaching would necessitate some change in the point of view of examiners. Those conducting final examinations would need to satisfy themselves that candidates were adequately educated rather than replete with facts, and that their knowledge of medicine and surgery was built on foundations of physiology and anatomy sufficiently strong to support the additions which post-graduate experience would add to it year by year. There is no doubt that this describes the attitude of many examiners of to-day, but the examinee is still in the unfortunate position of having to prepare for questions on rare diseases concerning which his knowledge is only of text-book origin. His burden is heavy enough without this additional charge.

Evolution of Neurology in Relation to Medical Education.

It has been my endeavour to show that the proposed changes in medical education are the natural outcome of the lesson taught by the evolution of neurology, illustrated by a comparison of the work on which neurologists of 25 years ago were engaged with that of the present generation. The research of to-day depends for its success, in most instances, on an increasing intimacy with the anatomy and physiology of the nervous system and demands, consequently, a high standard of proficiency in these subjects from any member of the profession who chooses this branch of medicine as his speciality. Other branches are rapidly following the lead, with the result that a form of education better suited to the needs of the day, and more in consonance with our modern conception of pathology will soon be a matter of general demand.

The plea which I have made here is not a new one. It has been the subject of appeals more eloquent than mine and of much consideration in the minds of many who have never voiced their opinion. We are slow to adopt radical changes in our methods, but this change is rapidly becoming not only a necessity but inevitable. Inevitable because the progress of medicine demands from its disciples a higher standard of education, and better weapons with which to face ignorance, superstition, and prejudice as well as disease. It is often said, perhaps with a suspicion of apology, that medicine is an art, not a science. Is it for that reason that in the past we have been almost encouraged to forsake the sciences of anatomy and physiology when we begin to practise the arts of medicine and surgery? There is no need for such estrangement since all arts are based on science and lose neither their beauty nor their interest when science guides their practice.

The day is surely coming when we shall be proud to call ourselves scientists, but it will not dawn until we see physiology and anatomy walking hand in hand with medicine and surgery forming an ever-growing intimacy such as we can discern in the evolution of neurology.

SOME OBSERVATIONS ON THE "MODERN THEORY" OF RENAL SECRETION,

WITH AN ACCOUNT OF A CASE OF RENAL GLYCOSURIA.

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The object of this paper is to show that certain observations that I have made do not entirely support the modern theory of renal secretion. This theory, as propounded by Cushny, presumes that when blood passes through the capillaries of the renal glomeruli an exudate consisting of water and all the crystalloid bodies of the plasma, in their respective proportions, is passed out into Bowman's capsule by a process of physical filtration, which is modified normally by such factors as blood pressure and flow, the osmotic tension of the colloids of the blood, and the permeability of the membrane covering the capillary tuft. To quote Cushny's words, "the glomerular filtrate is thus practically deproteinised plasma." As this glomerular filtrate is passed down the kidney tubule certain bodies—the threshold bodies—are re-absorbed by the tubule cells in definite proportions determined by their normal titres in the plasma. "No-threshold" bodies, such as urea, are rejected and can only escape by the ureter. The function of the kidney may be shortly defined as "the filtration of the non-colloid constituents through the capsule, and the absorption of Locke's fluid through the tubule cells."

According to this theory, therefore, in the normal person sugar as a crystalloid threshold body passes freely out into the glomerular filtrate in the proportion in which it exists in the plasma, and is re-absorbed by the tubule cells at a certain fixed and definite rate, no matter what the needs of the organism at the moment. The rate of this re-absorption, though normally fixed at the "optimum," may presumably be modified by drugs which affect the tubule cells, by the presence of an unabsorbable substance in the filtrate which exercises an osmotic tension contrary to the current of tubule cell activity and, finally, by the time during which the filtrate remains in contact with the tubule cells—that is, by the rate at which it passes along the tubules. Cushny suggests that during diuresis the urine will approximate more closely to deproteinised plasma, because the tubule cells will not have time to elaborate their secretion from the rush of glomerular filtrate.

The Theory Tested by Clinical Experiments.

It occurred to me that it might be possible in a measure to test this hypothesis if I could compare the rate of excretion of sugar in the urine with the rate of excretion of water in a fasting diabetic with a constant level of hyperglycæmia. In such a case, if the theory were true, it seemed reasonable to expect a definite correlation between these two factors, for the glomerular filtrate would contain the same constant percentage of sugar as the blood plasma, the amount of re-absorption by the tubule cells would vary mainly with the rate of passage of the filtrate, and the other factors affecting re-absorption (such as any substance increasing osmotic tension in the filtrate, or some affection of the tubule cells) would either remain constant or vary to a very slight degree in a fasting patient in bed. A suitable case was not easy to find, as the hyperglycæmia of most diabetics declines during starvation.

In August, 1921, E. S., a girl aged 10, was sent to me with severe diabetes. I took her into the private ward of the Children's Hospital. After the amount of fat in her diet had been gradually reduced she was starved. The period of starvation began at 6 in the evening; the blood-sugar was then 0·25 per cent. The specimen of urine passed when she woke the next morning was sugar-free; the next specimen, passed at 10 A.M., contained much sugar. The blood-sugar was still above 0·2 per cent. The starvation continued, and the same thing happened the next day; the early morning specimen was sugar-free—all other specimens contained sugar. The hyperglycæmia was untouched by three days' starvation and the prognosis was practically hopeless (as a matter of fact, the child died a month later). However, I resolved to make one more attempt to control the diabetes and to investigate the curious intermittent glycosuria.

TABLE I.—*Twelve Consecutive Specimens of Urine from 10.30 a.m., August 29th, 1921.*

Total urine (oz.).	Total sugar (grains).	Intervals (hours).	Water excretion (ozs. per hour).	Sugar excretion (grains per hour).
10	44·0	4½	2·2	9·8
12	47·0	4	3·0	11·7
8½	35·0	3	2·9	11·6
22½	59·4	12½	1·8	4·7
12½	47·0	5	2·5	9·4
7½	1·1	5½	1·4	0·2
5	0	4	1·25	0
12	0	9¼	1·3	0
12	18·5	5½	2·2	3·4
12	10·5	5	2·4	2·1
8	6·3	4	2·0	1·6
17	0	8½	2·0	0

For a period of three days, during which food was withheld for 48 consecutive hours, each specimen of urine was collected separately, measured, and its content of sugar estimated. The times at which the specimens were passed were carefully noted. It was thus possible to obtain an estimate of the average rate of excretion of water and sugar per hour. The actual figures were as given in Table I.

The blood-sugar was estimated twice; at noon on August 30th it was 0·15 per cent., at 5 o'clock on the following morning it was 0·18 per cent. Shortly after the second estimation a specimen of urine was passed which was sugar-free. It seems probable that the blood-sugar remained fairly constant during the period of starvation. It will be seen that the rate of excretion of sugar corresponds almost exactly with the rate of excretion of water, for the first 50 hours.

It seems to me that this may be reconciled with Cushny's theory. When a flood of water passed along the tubules during the day the cells, keeping steadfastly to their fixed rate of re-absorption, allowed some of the sugar to escape, the amount so escaping being directly proportional to the rate of flow; during the night, although the percentage of sugar in the glomerular filtrate was the same or even higher, the cells, having more time to act in the presence of a less rapid flow, re-absorbed all the glucose, and so the early morning specimen was clear.

I next investigated the correlation of the curves of the rate of excretion of sugar and the rate of excretion of water in several diabetics during their period of starvation under treatment. These curves were frequently parallel during the earlier part of the starvation period, when presumably the blood-sugar had not fallen very much, if at all, from its usual level. Cushny mentions this fact in support of his theory. It seemed likely that glycosuria disappeared after starvation as the proportion of sugar in the plasma (and glomerular filtrate) fell to such a level that, at the normal rate of travel of the filtrate down the tubule, the cells were able to re-absorb all the sugar in it. If this were really so it should be possible to reproduce glycosuria in a starving diabetic who had just become sugar-free by inducing a sudden diuresis with an associated increase of rate of flow of the filtrate down the tubule. I attempted this on many occasions, but never succeeded in reproducing any glycosuria recognisable by the ordinary clinical tests. So many factors need to be considered in this relation besides the instability of the degree of glycæmia towards the end of the starvation period, that I was unable to consider this evidence as directly contrary to the Cushny hypothesis; it was, however, distinctly surprising.

It was at this stage that the kindness of my colleague, Dr. L. G. Parsons, enabled me to investigate fully a case of renal glycosuria, of which the following is a short account:—

In December, 1921, towards the end of a period of three months' probation as a nurse, Miss H., an apparently healthy girl of 23, was found to be passing large quantities of sugar in the urine. Nothing abnormal could be detected on examination; she had no symptoms of any kind, no thirst, no polyuria, no wasting, and menstruation was normal. So far as the patient could remember she had had no illness of importance, and had always been regarded as a perfectly healthy girl. There was no family history of diabetes, but her paternal uncle had been refused life insurance some years previously on account of glycosuria. He has remained in good health since without restriction of his diet. Subsequent examination of the urine of the patient's father, mother, and brother showed nothing abnormal.

Miss H. was admitted to a side-ward of the General Hospital under my care in December, 1921. Dr. W. T. Hillier, clinical pathologist to the hospital, examined the urine and reported as follows: "It (1) reduces Fehling's solution; (2) is fermented by yeast; (3) gives osazone crystals which cannot be distinguished from those of dextrose; and (4) gives a colour reaction with orcein indistinguishable spectroscopically from that given by dextrose." On ordinary diet the separate specimens of urine all contained sugar which varied in amount from 2·5 per cent. to 5·5 per cent.; the majority contained about 4 per cent. The total urine passed in the day was usually about 35 oz. Di-acetic acid was never detected. The "starvation" level of the sugar in the blood was 0·06 per cent., and the curve obtained after ingestion of 50 g. of glucose by the mouth was normal. The patient was allowed to return to duty and continue her career.

In May, 1923, 18 months after the first tolerance test, blood-sugar estimations were again made after 100 g. of glucose by the mouth, with the following result: Starvation level, 0·06 per cent.; half an hour after glucose, 0·165 per cent.; one hour after glucose, 0·15 per cent.: two hours after glucose, 0·08 per cent. These values are within the limits of normal, but slightly higher than in December, 1921:

the dose of glucose was twice as large on this occasion, and I do not think there is any evidence of loss of tolerance, for I do not agree with MacLean that 50 g. of glucose by the mouth will always produce a maximal response in the blood-sugar of a normal person. Apart from occasional colds, the patient has remained well for nearly three years, and has carried out her duties satisfactorily. The total excretion of glucose remains about the same; during the tolerance test of May, 1923, the specimen passed two hours after taking the glucose contained 10 per cent. of sugar.

TABLE II. (*Miss H.*)—*Ordinary Diet.*

Total urine (c.cm.).	Total sugar (grammes).	Intervals (hours).	Water excretion (c.cm. per hour).	Sugar excretion (grammes per hour).
200	8·6	8·0	25	1·08
140	5·74	2·0	70	2·87
144	7·5	4·5	32	1·66
180	4·5	11·5	16	0·39
195	8·0	5·8	33	1·33
115	4·02	4·66	31	1·09
148	7·4	3·66	40	2·0
110	6·05	10·83	10	0·55
160	5·92	6·5	25	0·9
170	6·29	3·5	48	1·8

50 grammes of glucose given in place of breakfast after the fourth specimen.

TABLE III.—*Starvation.*

190	7·8	11·0	17·3	0·71
250	6·0	6·0	41·6	1·0
120	2·88	3·16	37·9	0·91
85	1·87	5·33	16·0	0·35
225	11·9	9·0	25·0	1·32

In December, 1921, for three days, while she was on ordinary diet, every specimen of urine passed was collected separately and measured and estimated in the same way as in the case of E. S., the diabetic child. (Table II.) A comparison of the rate of water and sugar excretion showed a correlation which was very close but not quite exact. Having regard, however, to the temporary disturbances of the blood-sugar level which occurred after the glucose and other meals, if at no other times, the correspondence is remarkable. During a period of 36 hours' starvation the glycosuria was unaffected and a similar relation of the rates of water and sugar excretion was noticed. Curiously enough, it was not as close as that shown during the days on ordinary diet. She was in bed throughout the whole period. (Table III.)

In February, 1922, the patient was readmitted for further investigation. I proposed to starve her for three days. On the second day I intended to limit the fluid intake to sips of water by the mouth, and on the third day to give her large quantities to drink in order to compare the rates of water and sugar excretion in the different conditions. Unfortunately, on the second morning of the investigation she became faint while getting out of bed, and during the day, as the result presumably of the starvation and the limitation of fluid intake, she became acidosed and it did not seem justifiable to continue the experiment. Diuresis was therefore induced towards the end of the second day and lasted only for a few hours. Estimations of the sugar, urea, and total chloride were made in each specimen of urine passed; the quantities were carefully measured and the times accurately kept. (Table IV.) The estimations of the blood-sugar at noon of the two days of investigation showed the same result, 0·08 per cent. It seems fair to assume that it remained constant, or nearly so, throughout the period. The rates of sugar and water excretion on the chart show fairly good correspondence until the forty-eighth hour. The chloride excretion is less accurately correlated, and that of urea tends to dissociation.

TABLE IV.

Date.	Time.	Interval (hours).	Urine (c.cm.).	Water excreted (c.cm. per hour).	Sugar (per cent.).	Total sugar.	Sugar excreted (grammes per hour).	Urea (per cent.).	Total urea.	Urea excreted (grammes per hour).	Chlorides (per cent.).	Total chlorides.	Chlorides excreted (grammes per hour).	Di-acetic acid.
26/2	2.0	—	285	—	1·76	—	—	1·35	—	—	0·65	—	—	0
	5.20	3·33	228	68·4	1·63	3·72	1·12	1·05	2·39	0·72	—	—	—	—
	9.5	3·75	142	37·9	2·07	2·94	0·78	1·5	2·13	0·57	0·61	0·86	0·23	0
27/2	7.0	9·9	285	28·8	2·80	7·98	0·80	3·15	8·98	0·89	0·75	2·14	0·22	trace.
	2.0	7·0	513	73·3	2·40	12·3	1·76	2·0	10·26	1·47	0·89	4·56	0·65	,,
	7.30	5·5	171	31·1	2·31	3·9	0·7	2·45	4·19	0·76	0·68	1·16	0·21	,,
28/2	8.0	12·5	199	16·0	1·45	2·9	0·23	2·7	5·4	0·43	0·76	1·52	0·12	marked.
	3.0	7·0	342	49·0	1·67	5·7	0·81	—	—	—	0·96	3·29	0·47	more.
	5.0	2·0	171	85·5	1·27	2·15	1·07	—	—	—	0·84	1·44	0·72	marked.
	7.30	2·5	570	228·0	0·28	1·64	0·65	0·5	2·85	1·14	0·28	1·59	0·63	less.
	8.30	1·0	684	684·0	0·08	0·55	0·55	0·2	1·37	1·37	0·08	0·55	0·55	trace.
	10.20	1·83	199	108·5	0·3	0·6	0·33	0·75	1·5	0·82	0·3	0·6	0·33	,,
1/3	8.0	9·66	399	41·3	1·45	5·8	0·6	3·0	12·0	1·24	0·4	1·6	0·17	faint trace.

When diuresis was fully established the quantity of sugar excreted in the urine fell very considerably. That the percentage of glycosuria should fall with diuresis was to be expected; that the total excretion should fall was surprising, and I am quite unable to reconcile this result with the Cushny hypothesis. Were the "modern theory" wholly true the result of diuresis would have been a smaller degree of elaboration by the tubules and consequently a greater total loss of sugar.

It may, perhaps, be suggested that the onset of acidosis vitiates the findings of this investigation, but I do not think so, for acidosis was well established at the twenty-fifth hour, and the curves of water and sugar excretion corresponded well with each other and with the modern theory until the forty-eighth hour—that is, until diuresis occurred. Again, it may be contended that the kidneys were pathological, and that it is not fair to apply the results of an investigation in pathology to what is essentially a problem in physiology. It seems to me, however, that in this patient the modern theory must presume either that the kidney tubules were unable to re-absorb sugar from the glomerular filtrate to the normal extent, or that the glomerular capsule during filtration at the normal rate exercised a selective function in the excessive excretion of glucose from the plasma. The latter suggestion is in itself improbable, and would be abhorrent to the upholders of the modern theory who deny any selective activity to the more highly specialised tubule cells. If the former suggestion be accepted I am at loss to explain why the tubule cells should so readily recover their power of re-absorption of sugar in the difficult circumstances of diuresis, and should lose it again when the glomerular filtrate passed slowly before them.

On March 14th, 1922, I approached the problem in another way. Over a period of five hours of induced diuresis hourly estimations of the hæmoglobin, sugar percentage, and total chloride percentage of the blood were made. At the same time hourly (in one instance half-hourly owing to the intensity of the diuresis) specimens of the urine were collected and measured, and estimations of the urea, sugar, and total chloride were made, with the results shown in Table V.

Clinical Observations Not Explained by the Modern Theory.

It will be seen that during diuresis the total quantity of sugar excreted in the urine diminished by comparison with the quantity excreted in the first hour when the rate of excretion was normal; that the excretion of urea was similarly reduced, but that the excretion of chlorides was, if anything, a little increased. The blood values for sugar and chloride remained practically constant; the hæmoglobin varied only once at the fifth hour to any extent. Unfortunately, estimations of the blood-urea were not made, the specimens having been lost. I had intended to compare the relative concentration in the urine of the no-threshold body urea and the threshold bodies, the chlorides, and sugar. As the data are insufficient, this comparison is not possible, but the main fact is unaffected that in this case, while the glycæmia remained constant, the amount of sugar excreted in the urine during diuresis diminished considerably. In my opinion, therefore, it is not possible to reconcile the results of my observations on these two cases of glycosuria in patients with a constant level of glycæmia with the modern theory of renal secretion as set forth by Prof. Cushny.

TABLE V.

Time.	Interval.	Fluid intake (c.cm.).	Urine excreted (c.cm.).	Rate of excretion of water (c.cm. per hour).	Blood sugar (per cent.).	Blood chlorine (per cent.).	Urine sugar (per cent.).	Total urine sugar.	Urine sugar excreted (grammes per hour).	Urine urea (per cent.).	Total urine urea.	Urine urea excreted (grammes per hour).	Urine chlorine (per cent.).	Total urine chlorine.	Urine chlorine excreted (grammes per hour).	Hæmoglobin (per cent.).
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	1	798	114	114	0·05	0·582	3·54	4·04	4·04	1·95	2·22	2·22	0·545	0·62	0·62	94
3	1	200	570	570	0·05	0·587	0·3	1·71	1·71	0·25	1·42	1·42	0·094	0·536	0·536	92
3.30	½	456	570	1140	—	—	0·16	0·91	1·82	0·08	0·45	0·9	0·083	0·473	0·946	—
4	½	456	513	1026	0·05	0·587	0·19	0·97	1·94	0·09	0·46	0·92	0·076	0·39	0·78	92
5	1	456	485	485	0·045	0·589	0·37	1·79	1·79	0·21	1·02	1·02	0·164	0·795	0·795	84
6	1	684	399	399	0·048	0·587	0·45	1·79	1·79	0·186	0·74	0·74	0·175	0·698	0·698	92

Speculation in a matter about which so little is known is attractive but rather idle. I would point out, however, that up to a certain point the result of the investigation appeared to support the "filtration and re-absorption" hypothesis, for during excretion of urine at a more or less normal rate, in both the diabetic and non-diabetic case, there was a remarkable correlation between the curves of the rates of water and sugar excretion. With the onset of diuresis in the second case, however, the correlation is entirely lost. Prof. Cushny writes ("The Secretion of the Urine," 1917, p. 194) as follows:—

> "Another difficulty is presented by experiments in which diuresis is superimposed on an existing phloridzin glycosuria, for if the amount of filtrate is increased while its sugar percentage remains unchanged and none of the sugar is re-absorbed in the tubules the total sugar of the urine must, of course, be augmented." (*Footnote.*—This actually occurs when diuresis is superimposed on the glycosuria of pancreatic diabetes and also in glycosuria in the rabbit from the administration of sugar.) "This is stated to be the case by Weber, while Loewe's experiments seem to be opposed to it. In order to substantiate this objection it would be necessary to show that the glucose concentration of the plasma is unchanged during the diuresis, and this has not been done."

Conclusions.

I think I may claim that my second case fulfils this condition, and that in my first case, although the blood-sugar estimations were not very numerous, there is strong presumptive evidence that the level of glycæmia remained fairly constant. It is true that my estimations were of the sugar in the whole blood and not solely of the concentration in the plasma, but it seems improbable that there would be sufficient alteration in the relative proportions of the sugar in the corpuscles and in the plasma during diuresis to account for the remarkable diminution in excretion.

It is not suggested that because my results in these cases are not to be reconciled with the "modern theory," therefore Prof. Cushny's views must be set aside completely. As I have already pointed out, my results, up to a certain point, are fully consistent with the filtration re-absorption hypothesis. It may well be that the modern theory tells a part rather than the whole story of renal excretion. For the time being I think it reasonable to accept the modern theory as correct during renal excretion at a normal rate. During diuresis induced by fluid by the mouth, however, some additional factor must be invoked besides filtration by the glomeruli and re-absorption of threshold bodies at a fixed rate by the tubule cells. What that factor is we do not know, but Hamburger's suggestion that the permeability of the glomerular membrane may be changed very considerably by an alteration in the constitution of the blood brought to it by the afferent arteriole has a great deal to recommend it. It seems that this alteration in permeability may be brought about by changes in the composition of the blood which are so slight that we are at present unable to detect them with certainty. There is other evidence that alteration of the permeability of the membrane may occur in the well-recognised fact that once glycosuria has been induced by taking glucose by the mouth it may persist for some hours after the glycæmia has fallen back to a normal or subnormal level. This condition is frequently found in the routine performance of tests of carbohydrate tolerance, and is often not associated with diuresis.

Finally, I have frequently observed that diabetics after a period of fasting will remain sugar-free with their glycæmia at a higher level than before the fast when they were passing considerable quantities of sugar in the urine. There is often no alteration in the total quantity of urine passed in these cases, and it is difficult to account for them on any other basis than that of a change in the permeability of the glomerular capsule.

It is with much pleasure that I acknowledge the valuable help of Dr. E. M. Ainscow, resident medical officer at the General Hospital, and of Dr. W. T. Hillier, the clinical pathologist, in the investigation of the second case.

SUBACUTE INFECTIVE ENDOCARDITIS.

A CLINICAL STUDY OF THIRTY CASES.

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THE modern realisation of the morbidity and mortality caused by heart disease has induced me to give some personal observation on the clinical manifestations of subacute infective endocarditis. The disease has for long been a recognised entity, but the clinical descriptions in the older text-books were somewhat vague, and as a result it was difficult to recognise and frequently missed. The disease is not uncommon, and I believe that one of the reasons which accounts for failure to recognise it is that, regarding it as an infective disease, a high remittent temperature associated with marked endocardial lesions is expected, and in the absence of a febrile temperature the progressive nature of the disease is liable to be overlooked. Sir Thomas Horder aptly described it as "a disease of great importance, partly on account of the difficulty attending its recognition, but still more on account of the difficulties attending its successful treatment."

I propose to deal with the disease as it has presented itself to me, describing its clinical characteristics as observed in a series of 30 cases which I have had under observation.

Age-incidence.

My cases have all (with two older exceptions) been in men between 25 and 35 years of age, who appeared to have been robust in early life—in fact, the majority of them had been on active service for several years in the late war. On referring to statistics I notice that 90 per cent. of cases were between 10 and 40 years of age, so that our proportion agrees in maximum age-incidence, and, while my opportunities of observing cases under 20 years of age have been limited, I believe that the disease manifests itself most commonly between the ages of 25 and 35.

Predisposing Causes.

In the case of pensioners, I have had great difficulty in eliciting a history of illness or disease prior to enlistment, but their subsequent history is easy to obtain, and the following are the diseases from which they suffered :—

Trench fever	8
Dysentery	5
Influenza	4
Malaria	4
Pneumonia	3
Wounds	2
Rheumatic fever ..	2
Enteric fever	1
Starvation	1

It will be observed that rheumatic fever takes its place towards the end of the list, but unwillingness on the part of the patient to acknowledge having suffered from it in early life probably accounts for this. Trench fever and influenza might be grouped together as preceding and probably predisposing diseases on account of similarity in symptoms and difficulties in accurate differentiation. In all cases the blood was examined for the Wassermann reaction. Only two gave a positive result, and both had suffered from other diseases—viz., malaria and enteric fever. It would appear, therefore, that syphilis need not be regarded as predisposing to this disease.

Symptoms.

General malaise ; feeling of exhaustion ; shortness of breath ; slight palpitation or rather consciousness of fast beating of the heart, more particularly on slight exertion ; tendency to sweat readily, and frequent night sweatings.

Signs.

Appearance of Patient.—Pallor of an even more pronounced type than that generally associated with aortic regurgitation is a characteristic feature, and it is present in cases which show no signs of an aortic lesion. This pallor should at once arrest attention, and should lead one to suspect an infective endocarditis. At a late stage there is a slightly yellowish tinge—café au lait tint. With the progress of the disease blood destruction increases and the hæmoglobin may fall to 20–30 per cent. There is a marked loss of flesh.

Pulse.—The pulse-rate is accelerated, generally 80–90 per minute, though frequently up to 100 or over. It remains persistently high, even when the patient is confined to bed. It is regular and of medium or low tension. Digitalis, though administered in large doses, fails to reduce the rate.

Temperature.—The disease being insidious in its onset, continued fever is not characteristic, and the slight variations of temperature which do occur are apt to be missed. If, however, the temperature is taken regularly, slight rises up to 99° F. will be observed. These generally take place in the evenings, and at intervals which vary from three to seven or more days. Those slight rises of temperature, in the absence of any other specific cause, should arouse suspicion as to the nature of the disease. In fact, a slight irregular intermittent fever, associated with a constantly accelerated pulse-rate and pallor, are of themselves sufficient to justify a provisional diagnosis of subacute infective endocarditis. Later, as the disease progresses, the temperature tends to be constantly subfebrile in character, but rarely exceeding 101°.

Heart.—All cases which came under my observation had affections of the mitral valve on admission, while a few had, in addition, evidence of implication of the aortic valves. Cases which came under observation at an early period showed little or no evidence of cardiac enlargement, but later, as the disease progressed, the area of cardiac dullness became enlarged, the enlargement being steadily progressive, and most marked in cases where the primary lesion was mitral. Terminally, the left border of cardiac dullness extended in one case to between the anterior and mid-axillary line. This patient had on admission a well-marked mitral regurgitant murmur, later a blurring of the second sound at the aortic area, and finally an aortic diastolic murmur. The extension of the disease from the mitral to the aortic valves, as evidenced by murmurs, was an interesting point in more than half of my cases, and it was accompanied by a gradual and definite enlargement of the heart. The aortic diastolic murmur was not due to a relative incompetence, but to actual organic changes in the valves, verified by post-mortem examination. Changes in the conductivity of the heart muscle also take place, the most common being bundle lesions and varying degrees of heart-block.

Spleen.—The next most common feature is enlargement of the spleen. I have come to regard splenic enlargement as an essentially characteristic sign. All my cases showed it. In 27 the spleen was definitely palpable, while in the remaining three the area of splenic dullness was decidedly increased. The enlargement was of a gradual and progressive nature, and it was never associated with sudden pain or other evidence of infarction. The spleen is, however, tender to pressure. It is possible that an infarct may take place in an already enlarged spleen, but I am convinced that it enlarges as a result of the infective process, as in typhoid fever or malaria. On post-mortem examination no infarctions were found in any of my cases, only a chronic hyperplasia of spleen tissue.

Lungs.—The respiratory-rate was accelerated, and in the early stages nothing was discovered on physical examination beyond a slight pulmonary catarrh. As the disease progressed, breathlessness became more marked, and signs of pulmonary œdema developed. Three cases showed signs of pulmonary infarction accompanied by a copious expectoration of blood and mucus. It is here worthy of note that the clinical picture is often that of obscure or latent tuberculosis. The sputum from two cases which were sent into hospital with a diagnosis of pulmonary tuberculosis was frequently examined and found negative. On post-mortem examination no evidence of tuberculosis was found in any organ. It is possible that the diagnosis of pulmonary tuberculosis was made on account of the evening rise of temperature, cough, pallor, and night sweating, although there were no signs of lung involvement.

Liver.—While the liver enlarges coincidently with, and in a somewhat similar manner to the spleen, the rate of enlargement is not marked until the terminal stages, it being as a rule congestive. In one post mortem the liver was an excellent example of "nutmeg liver."

Kidneys.—None of my cases had hæmaturia, though all had slight and transient albuminuria at some stage of their illness, a condition which became permanent in the terminal stages.

Clubbing of the Finger-tips.—This is very common. In cases of long standing definite clubbing, accompanied by lengthening and broadening of the terminal phalanges, develops. The finger-tips differ from those seen in congenital heart disease in being pale and showing no venous stasis.

Emboli.—Petechiæ are of common occurrence and are generally confined to the trunk. They would appear to be in part due either directly to the infective agent or to small emboli. In my opinion, they are of small diagnostic value. Emboli affecting the larger organs were not common. This may be accounted for by the fact that all my patients were under observation for a considerable time and confined strictly to bed.

Blood Cultures.—Bacteriological examination was carried out in ten cases, and only two showed any organisms. These were staphylococci of low virulence outside their normal habitat.

Case History.

The following notes on a case recently admitted to hospital illustrate the difficulty in diagnosis.

D. M., aged 25, had been acutely ill for 14 days prior to admission, but had not been well for some time previously, having suffered from shortness of breath and palpitation. Fourteen days ago he developed acute pain in the abdomen, and later marked breathlessness. Two days ago he noticed that his urine was dark red in colour and scanty, also that his face and legs were swollen. He had four attacks of rheumatic fever in early life. He was sent to hospital as a case of acute nephritis.

Condition on Admission.—Pulse, 100; resp., 40; temp., 97·2° F. He was extremely pale. His face was puffy, and there was some œdema of his feet and ankles. His skin was clear. His lungs were clear to percussion—a few moist râles were heard at both bases. His heart was enlarged to the left. There was a loud systolic murmur at the apex, and a slight diastolic murmur at the base. The spleen was palpable, and there was some hepatic enlargement. The kidneys were not palpable, and the bladder was not distended. No urine was available for examination. He died suddenly one hour after admission.

Post-mortem Examination.—Heart enlarged, evidence of old endocarditis, with subacute endocarditis affecting both mitral and aortic valves. Lungs: Evidences of slight venous congestion. Spleen: Much enlarged. Liver: Enlarged. Kidneys: Enlarged. Interstitial nephritis with capsule adherent in parts. Brain: No abnormality.

Post-mortem Diagnosis.—Subacute infective endocarditis.

Prognosis.

The disease, when once established, is invariably fatal. Periods of quiescence do occur, but they are generally of short duration, the patient as a rule dying of cardiac failure, or death resulting from embolism. Euphoria is often striking. Perhaps this is accounted for by the toxic process; at any rate, it makes the illness less distressing to the patient, who looks forward with hope to his cure.

Treatment.

I have tried various forms of treatment, and although some for a time gave encouraging results in that the patients stated that they felt better, none were permanently benefited. Some of the different forms of treatment tried were:—

(*a*) *Salicylates*, which appeared to benefit one case, the patient being alive ten months after discharge, and apparently recovered from an acute exacerbation of the disease.

(*b*) *Autogenous vaccine* was tried in one case but was of no value.

(*c*) *Mixed phylacogen vaccine.* Definite amelioration of symptoms, but of no permanent value.

(*d*) *Eusol intravenous injections* 50 c.cm. at a time. Patients became cyanosed, and complained of shortness of breath and considerable distress after the injection. The following day they felt much better, and there was a fall in the pulse-rate. This proved to be of a temporary nature. A second injection was given with the same result, but owing to the immediate distress following the injections, and the doubtful improvement, this treatment was discontinued.

(*e*) *Arsenic.* A Wassermann blood-test was made in all cases. Two gave a positive reaction, and each was treated with novarsenobillon some months prior to any evidence of the disease, and it would appear that this had no action in preventing its development.

(*f*) *Quinine salicylate*, gr. v.–x., thrice daily, appeared to have some beneficial action.

Prevention.

Owing to the failure of curative forms of treatment one naturally considers the possibilities of preventive measures. Diseases which are common in this country, and which I believe predispose to subacute infective endocarditis, are rheumatic fever, pneumonia, and influenza.

With regard to rheumatic fever, endocarditis has always been recognised as one of its chief complications, and on that account, as also on account of the tendency to relapses, patients suffering from the disease are confined to bed for lengthened periods. This, by giving the heart the maximum amount of rest, enables it to escape with the minimum amount of damage. True prophylaxis would be the removal of the causal agent, but this is difficult on account of uncertainty as to its nature. Attention should, however, be paid to the prevention of chill and damp at work, housing conditions, and the removal of septic foci in teeth, tonsils, &c. Whether homes of recovery for convalescents from rheumatic fever will ever be successful is questionable, at least the rheumatic child, who is often restless and fidgety, ought to be given a chance by strict confinement to bed. The case of the unfortunate man who has to do his work, or the housewife who has her duties to attend to, is more difficult to overcome.

It used to be said that patients who recovered from pneumonia did so "without any after-effects, and without cardiac involvement," but this cannot be regarded as an accurate statement. Of late years the tendency has been to shorten the period of convalescence, doubtless due to the desire of patients to get back to their duties. The older physicians, however, insisted on a prolonged period of convalescence, and this apparently justified their better prognosis. Now that it is a notifiable disease, it is to be hoped that many of the serious after-effects will be avoided with the better nursing and supervision in hospitals during the acute illness and convalescence. These remarks would apply equally to influenza. Both are toxic diseases, and although at the time there may be no endocardial mischief apparent, they certainly give rise to a weakened myocardium—a latent focus of disease may be established which, under provocation from some debilitating cause, will assert itself in the course of time.

The early controversy with regard to endocardial lesions resulting from trench fever would appear to support this view. It is now evident that those who contended that there were no endocardial complications based their opinion on early observations, while those who supported the opposite view did so from observations at a later stage—usually during late convalescence.

Summary.

The essential points in the diagnosis of acute infective endocarditis are: (1) pallor, (2) clubbing of finger-tips, (3) slight irregular intermittent fever, followed by afebrile intervals, (4) pulse-rate increased, (5) splenic enlargement, (6) valvular disease, (7) signs of embolism. A more prolonged convalescence and careful supervision of patients after acute illnesses are urged.

WOMEN ON HOSPITAL BOARDS AT LIVERPOOL.—A large and representative conference summoned by the Social and Industrial Reform Committee of the Liverpool Women Citizens' Association to discuss the question of the appointment of women on hospital boards was held recently in Liverpool. It appears that in a number of Liverpool hospitals, including the Royal, the Southern, and the Northern, there were no women on the boards, nor any special women's committees with powers. A resolution was carried unanimously to the effect that the presence of an adequate number of capable women on the boards or committees of management of the hospitals was desirable in the interests of efficient, economic, and sympathetic administration, and that the meeting noted with regret that a considerable number of Liverpool hospitals had no women on their managing boards, and resolved to work for the removal of this defect.

THE THERAPEUTIC EFFECTS OF ULTRA-VIOLET RADIATIONS.

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ULTRA-VIOLET radiations can be obtained from the sun and from various artificial sources, but while the therapeutic value of insolation is now universally recognised, it is important to realise that *all* the benefits obtained by this method of treatment are not due to the effect of light.

Leonard Hill[1] has shown that the exposure of the naked body to cool air raises the basal metabolism from 50 to 100 per cent., and also that since the amount of moisture which cool air can hold is small, the effect of breathing it will be to cause a flow of secretion from the respiratory mucous membrane. These beneficial results are independent of any radiation effects and must not be confused with them. The value of "open-air" institutions is largely due to this increased metabolism caused by cold. The surprising way in which muscular tone and nutrition are kept good in patients who are confined to bed with their limbs fixed in appliances is explainable by the fact that such patients are continually shivering, and are therefore exercising their muscles. I have frequently found that the appetite and general condition of patients have been greatly improved by the production of shivering two or three times a day for short periods.

When considering the effects of ultra-violet radiation it is important to remember that no rays reaching us from the sun are shorter than 290 $\mu\mu$ in length. The rays from the carbon arc are more like solar radiations than those obtained from other sources, some of which, for example, the tungsten-arc and quartz-mercury vapour lamps, give out some very short rays. These may have a quite different physiological effect from the longer rays obtained from exposure to the sun.

So far as our present knowledge goes it would seem that there are two ways in which ultra-violet radiations may act beneficially: (1) by increasing the bactericidal power of the blood, and (2) by activating the vitamins in the body.

Increase of the Bactericidal Power of the Blood.

As a result of some interesting experiments it has recently been stated[2] that "Any insult to the skin, whether produced by ultra-violet and invisible rays, or by dark heat, or by blistering agents, appears to provoke or increase the defensive power of the body."

Probably the results are brought about in two different ways. (1) By warming the blood. This is caused by the absorption of the dark heat and the visible rays. Sonne proved that radiations by visible rays increased the resistance of guinea-pigs to diphtheria toxin, and others have brought forward evidence in support of the beneficial effect of heat in this direction. (2) By the absorption of the products of tissue damage acting as a stimulant to immunising mechanisms. Rays below about 300 $\mu\mu$ only penetrate a very minute distance through the skin. As stated above, there are no rays shorter than 290 $\mu\mu$ in solar radiation.

It seems likely, therefore, that this tissue destruction is only produced by the dark heat, visible and near ultra-violet rays, and of course, by blistering agents, &c. So far it would seem that of the ultra-violet radiations only those of the "near" region have any effect on immunisation. But other investigators claim that shorter rays have a greater chemical effect, and do penetrate the skin sufficiently to produce their results, provided that they are intense and act for some time.

Schunck[3] says: "It is certain that the radiations most effective in causing sunburn, irritation, and destruction of animal tissue are chiefly confined to the middle ultra-violet region," and that the greatest effect is between 235 $\mu\mu$ and 250 $\mu\mu$. Verhoef and Bell[4] carried out experiments which proved that it is the radiations shorter than 305 $\mu\mu$ which injure cells by chemical action. Burge[5] states that ultra-violet rays kill living cells by changing protoplasm so that certain salts can combine with it to form insoluble compounds; and that the effective radiation is between 254 $\mu\mu$ and 302 $\mu\mu$. Ultra-violet rays of short wavelengths convert oxygen into ozone, and it has been suggested that the formation of this in the superficial cells of the skin causes irritation and tissue damage. Colebrook[6] has recently shown that the bactericidal power of the blood is not always increased by ultra-violet radiations, but that in certain patients in which it is already low ultra-violet rays will depress it still further.

This will possibly be the reason why I have found that some patients get worse when treated with ultra-violet radiations. In all these cases I have noticed that the weight has decreased, and there is a marked loss of appetite and energy. Occasionally in children with osseous tuberculosis there has been an increase in activity of the local lesion, but this has not been so serious as the alteration in the general condition. Fortunately, the majority of these patients have regained their previous health rapidly on discontinuing the light treatment.

Effect on Vitamins.

Vitamin A (either alone or allied with some similar substance) has been shown to be an important factor in controlling the normal growth and calcification of the body.

Mellanby[7] has shown that ultra-violet light activates the fat-soluble A-vitamin already stored in the body, although it has no power of synthesising it, so that in this respect (in calcification and growth) ultra-violet radiation applied without giving vitamin A in sufficient quantity would have no beneficial effect. Miss Luce's work,[8] showing that the antirachitic power of milk is definitely increased if the cows be exposed to sunshine, affords additional evidence of the value of radiations in this direction. There is also some evidence that if air, through which ultra-violet radiations have passed, be breathed, a similar effect will be produced to that obtained by exposure of the skin to the rays. It is interesting to note in this connexion that Zwaardemaker[9] has shown that the place of potassium in Ringer's solution can be taken by radiations from radium, so far as regards maintenance of nutrition and function of a frog's heart.

Pigmentation.

I believe that the commonly accepted assertion that the degree of pigmentation is an indication of the resistance of the body to disease is wrong. It is, of course, well recognised that the complexion of the patient influences the amount of pigmentation; blondes pigment with difficulty and persons with red hair less easily still.

Apart from these primary differences I recognise at least three distinct types of pigmentation, which may occur irrespective of the complexion of the patient. (1) The dark reddish-brown colour, which later becomes an almost chocolate-brown—this follows exposure to the sun's rays and to radiations from a carbon arc lamp; (2) a slatey-grey colour which follows prolonged exposure to the rays emitted by the quartz-mercury vapour lamp; (3) various shades of yellow, rather similar to, but not to be confused with, the colour sometimes seen in cachectic patients. This form of pigmentation may follow the use of any source of ultra-violet radiation, and I have found it chiefly in patients who are not making satisfactory progress.

Any observer who has closely watched patients treated by artificial or natural heliotherapy, suffering from such a disease as bone tuberculosis, will have noticed that some of them with similar complexions will, under similar conditions, pigment much more than others, *irrespective* of the condition of their general health or local lesions. I have very frequently seen patients with well-marked deep brown pigmentation with actively progressing disease, and my personal feeling is that, apart from the yellow type mentioned above, the degree and type of pigmentation are no indication of the response of the patient to treatment.

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THE USE OF PITUITARY WHOLE GLAND IN CHRONIC CONSTIPATION.

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THE result of administering pituitary whole gland by the mouth in this case was so striking as to warrant a record being published.

The patient, a girl aged 14 years, was first seen by me early in January last year. She had suffered from constipation from birth, the bowels acting, as a rule, only once in seven or eight days. She looked very ill. The skin and her general appearance suggested a toxic condition. There was practically no colour in the cheeks and her lips were white. She possessed much less energy than most girls of her age and it required a great effort on her part to enable her to take any interest in things generally. The appetite was large, she slept fairly well, but was restless at night. There were a few glands in the right iliac fossa. Her net weight was 4 st. 9 lb. 10 oz., and her height 56 in. In her general appearance her mother stated that she took after her father. Constipation did not run in the family, but there had been a tendency to constipation with the mother throughout her life. The child had previously suffered from measles and whooping-cough, from which she had made excellent recoveries. When 3 years of age a motor-car ran over her, but apparently caused no injury. With regard to her bowels, the mother stated that her daughter went to stool each day but failed to have an action. She did not suffer from worms.

Treatment.—She was given mist. alba night and morning and this was effective for a time. Later on mist. mag. co. was tried with fair success. Tr. nuc. vom. benefited her in certain respects, but the constipation remained as before. Liquid paraffin proved distinctly useful, but a tablespoonful three times daily was necessary to ensure an action of the bowels, and even that did not always prove successful. On some days the paraffin was passed without fæces accompanying it. A month after she was first seen, a bismuth meal, and, later, barium injections per rectum showed some ballooning of the sigmoid and of the upper part of the rectum. The condition of the skeletal muscles was distinctly atonic, and the bowel seemed to be similarly affected.

After a further two months' trial on various laxatives, purgatives, and tonics, which merely opened the bowels with difficulty and did not in any sense alleviate the toxæmia, I determined to try the effect of pituitary whole gland to see if it would encourage normal contraction of the bowel. The effect of the subcutaneous injections of pituitary extract upon the bowel is well known, but it would be unthinkable that any patient should continue such injections for the rest of her natural life. For practical purposes, therefore, it would be necessary for the endocrine substance to be administered per os. One grain of pituitary whole gland (Armour) was administered thrice daily after meals, the liquid paraffin in small doses being continued. Apparently, as a result of this treatment, the bowels were now opened daily. The liquid paraffin was discontinued after a couple of weeks, but the pituitary whole gland was continued. The bowels have continued to be opened daily by this method up to the present time. The mother informed me that about every ten days the bowels were not open for two days, but this coincided with the days upon which the patient had not been given the pituitary gland, which the mother buys herself; on four or five occasions she has not ordered it in time. It is interesting to note that immediately the pituitary is resumed the bowels open normally again. The whole appearance of the child has changed since she has had the pituitary treatment. She looks now a fine healthy girl, the lethargy has disappeared, and she is full of energy and mental activity, in marked contrast to her previous state.

I asked my colleague, Dr. H. E. Archer, to do a glucose tolerance test, which he did, as follows, on June 6th, 1924.

Blood-sugar at 2.25 P.M., 0·11 per cent. (50 g. of glucose given at 2.30 P.M.); ¼ hour after glucose, blood-sugar, 0·17 per cent.; ½ hour after, 0·19 per cent.; 1 hour after, 0·15 per cent.; 1½ hours after, 0·135 per cent.; 2 hours after, 0·105 per cent. The urine collected at end of two hours gave a very faint reducing reaction. In the first half hour the blood-sugar rose above the normal threshold and there was at that period presumably a slight excretion of sugar in the urine. The fall to normal was slightly delayed.

A further test will be carried out later on (1) while taking pituitary extract and (2) after being for four days without it, to compare results. Dr. Archer suggested that it might at first sight appear that one was dealing with a potential diabetic. The case will require close watching for a year or more and further tests will be necessary before it will be possible to determine this matter.

Cushny[1] states that intravenous injections of an aqueous extract of pituitary gland cause pronounced effects in certain organs, especially in those containing involuntary muscle. When injected intravenously the blood pressure rises slowly and remains elevated for some time. The rise in blood pressure is longer maintained, but is smaller and less abrupt, according to Cushny, than when it is produced by adrenalin. The heart is generally slowed. "The stomach and intestine are aroused to stronger contractions under pituitary extract and their tone is increased, the relaxation being much less complete." He quotes Dale in the statement that the uterus contracts more strongly and relaxes less completely after pituitary extract, which he thinks arises from a direct muscular effect after hypodermic injection of pituitary extract. The increased secretion of the mammary glands Cushny believes to be probably caused through the rapid expulsion of the milk by the contraction of the unstriated muscles of the gland. It is interesting to note that Cushny states that "the administration by the mouth of the dried gland or its extract is not attended with any obvious result."

In a recent case of adiposis dolorosa which I showed before the Royal Society of Medicine the chief symptoms had disappeared and the condition had been nearly cured, or at any rate distinctly alleviated, by the oral administration of pituitary whole gland. Encouraged by this I determined to try the same method of procedure in the present case, and it appears to have been quite successful. Apparently the case is similar to one of hypothyroidism in which small doses of thyroid gland given daily effect such wonderful improvement in the mental and physical condition of the patient. The sugar tolerance test in the meantime is just interesting in that it is not quite normal, and yet so far we have not attained the typical pituitary glucose tolerance curve which was obtained in the case of adiposis dolorosa.

It is obvious that it would not do to administer pituitary promiscuously to all cases of constipation, as it would only seem to be indicated where there is a natural atonic condition of the bowel due to lack of this endocrine. Still, there must be many sufferers of this type, and it would be of distinct interest to learn the experience of others in dealing with these cases.

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[1] Cushny: Pharmacology and Therapeutics of Drugs, 7th edition. J. and A. Churchill.

Clinical and Laboratory Notes.

CONGENITAL MALFORMATION OF HANDS.

By C. Marsh Beadnell, C.B., M.R.C.S. Eng.,
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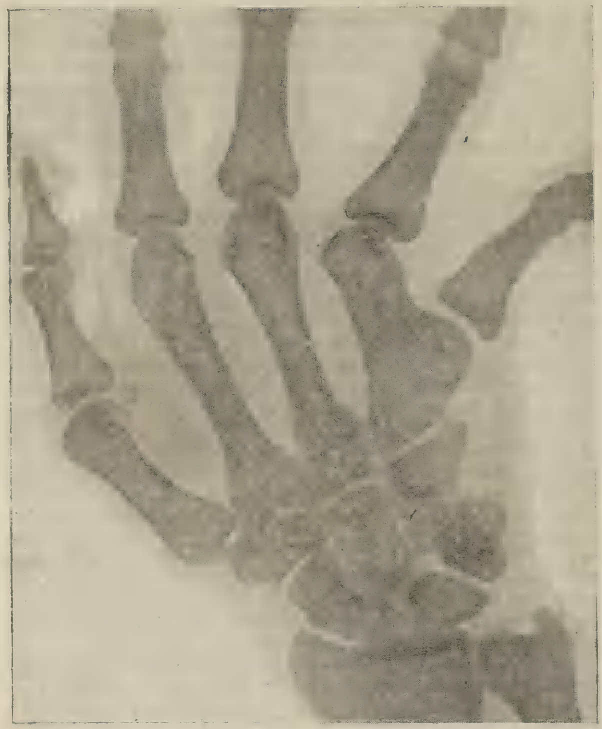
The following case of congenital malformation seems worthy of record.

The patient, aged 22, serving in the army, had been admitted for bronchial catarrh and hypertrophied tonsils. It was noticed that the hands were malformed. They presented in general outline the shovel-shaped "hands" of a mole; the digits, especially the fourth and fifth, were permanently deflected towards the hypothenar side. The grip was firm and no practical disability existed in consequence of the condition. There had been no traumatism. His father stated his son was born with the defect, and he thought a maternal uncle had a similar deformity. Wassermann reaction, taken on two occasions at an interval of a week, was positive. Denied acquired lues.



The following are the chief points differentiating the skeleton of the hand from the normal:—

1. The capitate bone fails to articulate with the fourth metacarpal.

2. The hamate bone of the left hand articulates on its distal hypothenar aspect with a small additional carpal bone. It was at first considered this was the pisiform which had been displaced from the triquetral bone to the hamate, but the radiologist (Surg.-Commander J. H. Rooney) is of the opinion that the pisiform is in situ proprio, and that the ossicle in question is a true additional carpal bone. It is not in evidence on the right side. The hamate also abnormally articulates with the third metacarpal.

3. The first and second metacarpals are in abnormal mutual articulation.

4. The fourth metacarpal shows considerable shortening, and is, apparently, fused throughout its length to the proportionally shortened fifth metacarpal. The common base of the two fused bones articulates with the hamate, and, on the left side, with the small ossicle mentioned above. The fourth metacarpal is prevented from articulating with the capitate bone by the abnormal junction effected between the hamate and third metacarpal.

5. The long axis of each of the phalanges, normally continuous with that of its metacarpal, is inclined towards the hypothenar aspect, that of the second and third digits being at an angle of 25°, of the fourth 45°, and that of the fifth being 80° to 90° to the normal. The first phalanx of the fifth finger articulates with what would appear to be the base of the fifth metacarpal.

Chatham.

A CURIOUS CASE OF PARTIAL UTERINE INVERSION.

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Since chronic post-partum inversion of one half of a uterus didelphys must be a condition of extreme rarity, I am putting this case on record.

The patient, Mrs. G. S., aged 32, was sent to me as an emergency case by Dr. R. Britton, of Bristol, on account of recurrent attacks of severe hæmorrhage following her confinement.

The patient had had a left tuberculous hip since childhood for which she had had six operations, and it was now fixed and quiescent. Her obstetrical history was as follows. Married for nine years and had three previous pregnancies. At the first she had a stillborn child at eight months, at the second the child was born alive but developed paralysis, presumably due to difficult forceps, while her third was stillborn at full time. She states that she had chloroform and an operation for all of them in a hospital.

The present confinement took place on Feb. 10th of this year, when she was attended by a midwife and delivered of twins, one of whom died after three weeks. She remained in bed for 14 days. A week after the confinement uterine hæmorrhage commenced and was continuous up to her admission to the Bristol General Hospital three months later, at times being extremely severe.

Condition on Admission.—When admitted to hospital she was pale and collapsed and blood was trickling from the vagina at a fair rate. She was too ill on admission for operation or even examination and restorative measures were adopted. When slightly better I examined her and found in the vagina a large fleshy mass, which bled on manipulation, banging by a fairly thick pedicle from one side of the cervix which was patent for one finger. I made a provisional diagnosis of a cervical polypus, and the general condition having improved she was taken to the theatre and examined under an anæsthetic with a view to operating on whatever I might find. I then found that the body of the uterus was absent, and, to the right of the pelvis, a mass which I took to be an enlarged tube and ovary; in consequence I diagnosed chronic inversion.

Operation.—I attempted to reduce the inversion by pressure but was unable to do so, and in consequence I opened the abdomen with a view to incising the cervix at the internal os. I found a normally shaped uterus lying to the right of the pelvis having a tube and ovary attached to the right cornu, while the left side was smooth and completely covered with peritoneum. I could find no sign of the left tube or ovary and so presumed that they were inside the inverted half, neither was there any sign of an opening in the peritoneum at the side of the uterus through which the inversion had taken place. I immediately closed the abdomen and performed vaginal hysterectomy of the inverted half.

The patient made a complete recovery from the operation, but convalescence was prolonged by a left-sided pleural effusion of tuberculous origin; she returned home quite well some two months after the operation.

The interesting points about the case, besides its extreme rarity, are, first, that this abnormality was not discovered before, in spite of the fact that her three previous confinements were in a large hospital and necessitated instrumental delivery; secondly, her menstrual cycle was not fortnightly, as occurs in some of these cases; thirdly, that presumably in this confinement a fœtus developed in each half of the uterus; and lastly, that she did not die or at least experience profound shock when the acute inversion occurred at the confinement That it did occur then I do not think there is any doubt, as I was told by her friends after my operation that "something round and fleshy came out of the opening after the confinement and the nurse put it back."

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

THE opening meeting of this section was held on Oct. 11th, when Sir ARNOLD LAWSON delivered his presidential address on

TINTS AND THEIR VALUES.

He said the subject of tints had become a somewhat prominent one recently, and much had been written—reasonably and unreasonably—about the destructive effects of ultra-violet rays on human eyes. Owing largely to alarums for which the optical trade was responsible, the public seemed to have become largely imbued with a haunting fear of daylight, so that a large body of healthy people were wearing tinted glasses for protection. These glasses seemed to Sir Arnold Lawson to have been prescribed in an indiscriminate and indefinite way. Assuming the wave-theory of light to be correct, it was known that the visible spectrum extended from waves of light of 700 μμ at the red end to 400 μμ at the violet end. The infra-red rays could pass into the eye unimpeded, and the ultra-violet rays caused harmful chemical action. The eye possessed no direct protection from the luminous and infra-red rays, but Nature provided a good deal of protection against the ultra-violet rays. Experiment showed that this protection was furnished by the cornea and the crystalline lens, especially the lens; the cornea absorbed all waves of shorter length than about 290 μμ, while the lens was impervious to ultra-violet rays of shorter wave-length than 350 μμ. In the laboratory the ultra-violet radiation had been traced to waves of about 200 μμ, hence only a very small proportion of possible ultra-violet radiation could reach the retina normally. And ordinary sunlight at low altitudes was rather poor in ultra-violet rays; it contained few of shorter wave-length than 350 μμ. Also, protection from the heat radiation at the red end was to some extent afforded by the absorptive properties of the pigment lining the back of the iris and choroid, and by the pupil's power of contraction. In all human races the eye was self-adapted to endure without harm the sunlight of the particular part of the world they lived in. Hence healthy eyes, in ordinary circumstances, did not need protection by tints. The situation was, however, somewhat complicated by various subsidiary factors, the most important being (1) the intensity of the light, (2) the duration of the exposure, (3) the presence of glare, (4) occupation or trade. With regard to the first, extreme degrees of sunlight, especially in the rarefied atmosphere of mountains, were abnormally charged with ultra-violet and infra-red radiations, and this implied an increased dosage. The chief danger from the eye experiencing intense sunlight seemed to be from the red and not from the violet end of the spectrum. Concerning the duration of the exposure, under certain conditions of health, prolonged exposure to even moderate degrees of light might be harmful, due to a lowering of the natural resistance. As to glare, this might considerably complicate the patient's problem. Glare was the unpleasant effect caused by excessive reflection from below. Usually glare proceeded from snow, desert sand, rock, water, or chalk. The light, in glare, struck the eye in an unaccustomed manner, and it was something beyond normal experience. Snow reflected about 70 per cent. of the existing sunlight, and snow enabled the effects of intense light to be felt even when the direct sunlight was of but moderate intensity. The effects of glare were exerted rather in the luminous and infra-red regions of the spectrum than in the ultra-violet; hence it was reasonable to consider snow-blindness as due not so much to excess of ultra-violet radiation as to excess of exposure to the luminous and infra-red radiations. The conjunctivitis accompanying snow-blindness was probably due to sunburn of the conjunctiva. Dealing with the effects of occupation, he said that such trades as acetylene-welding exposed the worker to intense ultra-violet radiation; and, on the other hand, glass-blowers and workers in foundries were subjected to excessive heat-radiation.

Spectroscopic Values.

The President then passed to a consideration of the spectroscopic values of various tinted glasses. For this study, he selected London smoke No. 3, three shades of amber, five shades of Fieuzal, Crookes A, A2, B, B2, and peacock-blue. All the glasses so tested were of 2 mm. thickness, except that peacock-blue was examined in thicknesses of 0·5 and 2 mm. Thickness of glass was a most important point. The experiments were arranged by Mr. Hamblin, and the spectroscopic photographs he showed were executed by Dr. Judd Lewis, professor of physics at University College. These latter were embodied in a chart shown. With regard to ultra-violet radiation, the greatest absorptive power was noted from the darker Fieuzal tints, while the peacock-blue and the Crookes glass produced much the same effect. Next in order came amber shades, and the least protective was No. 3 shade of London smoke. All the Crookes shades had practically the same absorptive power, and none of the Crookes shades protected the eye against wave-lengths shorter than 350 μμ. The only tints which cut off all ultra-violet radiation were the darker shades of Fieuzal. For acetylene-welding the darker shades of Fieuzal were much better than Crookes glass, and in high altitudes and for snow-blindness nothing gave so much protection and comfort as Fieuzal 4 and 5 or peacock-blue. Concerning red and infra-red radiation, the peacock-blue was by far the most effective, especially when 2 mm. thick, next in order being Crookes B2 and Fieuzal 4 and 5. The various shades of amber were less effective than the corresponding shades of Fieuzal, and less so than a medium shade of London smoke or Crookes B2. All the various kinds of tint were equally effective in generally diminishing the luminous spectrum. Prescribers of tints should always pay special attention to the thickness of the tinted glass. Another series of photographs were taken showing the absorption of the tints when of only 0·5 mm. thickness. The absorption effect, in the case of the thin glass, was greatly lessened. A glass of less than 2 mm. thickness was likely to produce an effect considerably less than was expected. This consideration was of special value when ordering a tint without any incorporated lens, and when ordering a tint to be overlaid on a minus lens. In these circumstances it was well to specify the thickness of glass to be employed. It would be valuable if some scientific body, he said, such as this section, could agree on uniformity of glass thickness for prescriptions for these tints. No such uniformity existed at the present time. The President then passed to a consideration of the adaptation of these principles to the wearing of tints in health and disease.

Tints for Eyes Healthy and Aphakic.

Under ordinary circumstances, protection by ultra-violet glasses was quite unnecessary. When extraordinary circumstances were apt to be encountered, the two main factors to be considered were the luminous and the heat radiations, rather than the ultra-violet. In high sunlight and glare, the darker shades of Fieuzal were much more effective than Crookes glass, and for extreme cases peacock-blue was the most satisfactory. Artificial light was not stronger in ultra-violet radiation than was sunlight. Dr. Leonard Hill recently stated that in the case of an oil lamp, 97 per cent. of the energy was in the infra-red region, and of electric incandescent lamps, 95 per cent. Crookes A or A2 glass had the superiority that it afforded a general shade without materially disfiguring the appearance or altering colour values. There were many people with quite healthy eyes who were, however, physically or mentally abnormal. Often in physical disease and neurasthenia the general function of the eyes was impaired, and help was needed for them. Smoked glass was still as valuable as ever, but it was somewhat depressing, and Fieuzal did not so much interfere with the colour scheme and was as effective as smoked glass in other respects. The wearing of tints was apt to become a habit, and thus to lead to inability to endure bright light unaided.

With regard to wearing tints in disease and as a prophylactic against disease, it had been shown that cataract in glass-blowers was due to harmful infra-red radiation, not to the effect of ultra-violet rays. The best prophylactic tints were Fieuzal 4 or 5 and peacock-blue. In all cases of cataract tinted glasses should be worn in bright sunlight or glare. Glare by artificial light should be shunned as much as glare in sunlight. He often ordered two degrees of shade—one for moderate, the other for extreme degrees of light. After the extraction of cataract, the eye was deprived of its most powerful factor of protection against ultra-violet radiation. All aphakic patients should wear some protective tint out of doors, except on dark and cloudy days. In active inflammatory disease of retina and choroid he always ordered peacock-blue, which cut off all infra-red radiations, and most of the yellow and orange also. It had a very soothing effect on the patient.

Discussion.

Mr. **Harold Grimsdale**, in proposing a vote of thanks to the President for his address, thought a further use of tinted glass was to be found in the case of people towards middle life who manifested Pulfrick's phenomenon. That authority showed, by a series of experiments, that the perception of a stimulus varied with the intensity of the stimulus; therefore, if by any means the stimulus reaching one eye was weakened, as by putting tinted glass in front of it, the position of a moving object was falsely projected. Some people, for this reason, found a difficulty in exactly timing their strokes in sport. Sometimes after retro-bulbar neuritis, although the form perception had been recovered, the light perception had been somewhat reduced, and a moving object was seen in the wrong position.

Mr. **Ernest Clarke** referred to the early electric light with the carbon point, and the glare produced; and mentioned with satisfaction the present practice in many buildings of brightly illuminating a white ceiling, thus allowing the room to be served by a soft diffused light. A great point about Crookes glass was that it did not cut off luminous rays.

Mr. **Malcolm Hepburn** said he had found that the wearing of peacock-blue glasses on mountain climbing expeditions was not comfortable; the glasses had to be worn the whole time, whether one was climbing rock or snow, and differentiation was so difficult that a false step was easy. Green was preferable, in his experience, for these conditions.

Mr. **G. H. Pooley** (Sheffield) agreed that among the furnace-men the wearing of peacock-blue glasses seemed a source of great comfort, and certainly enabled the work to be done efficiently. In the North of England it was found that optical testers were ordering Crookes glasses in a wholesale fashion, with no such reasons as actuated the medical man, and the public felt that the extra price betokened outstanding merit. Healthy people with normally healthy eyes resorting to tinted glasses was a thing the profession should set themselves to discourage. He did not think it had been substantiated that infra-red rays caused any definite changes in the lens.

Mr. **Bernard Cridland** (Wolverhampton) said he understood from the manufacturers of Crookes glass that the tint had little to do with its optical properties, and that the tint was added because otherwise the public would not think the price was justifiable.

Mr. **Cyril Walker** (Bristol) referred to the success of smoky amber-coloured glasses in the case of a friend in Labrador; these enabled him to hunt and shoot without discomfort.

Mr. **Treacher Collins** also had a word of praise for amber-tinted glasses, following upon his own use of them. When people who came to him were likely to be exposed to ultra-violet rays he ordered them amber-coloured glasses. One such patient went to Tibet, and when he came back he said the rest of the party had snow-blindness, but he, having worn the glasses, was immune. He agreed that cooks and others exposed to heat derived relief from wearing peacock-blue glasses. He would like the President to extend his researches to pebbles.

Mr. **A. D. Griffith** thought the chief value of Crookes A lay in its absorption of the yellow band, by which the luminosity was reduced; this was the centre of the diffraction spectrum, and was the region of greatest luminosity.

Exhibition of Case.

Mr. **Rayner Batten** showed a patient with a peculiar appearance in the optic disc, which might be due to either a swelling or a depression. It was situated behind the scleral ring. Possibly it might be a clear-walled cyst.—The **President's** view was that it was a hole, with a vessel running across the bottom of it. There was a strong parallax.—Mr. **Treacher Collins** thought it might be a crater-like depression filled with neuroglial tissue, such as described by Coats.—Mr. **F. A. Juler** agreed with the President's view.

Dr. **A. F. MacCallan** read a paper giving his experiences in ophthalmic practice in Egypt, discussing the various operations, and his own procedure in the course of his work there.

SECTION OF PHARMACOLOGY AND THERAPEUTICS.

UNIVERSAL CURES, ANCIENT AND MODERN.

On Oct. 14th Prof. **A. J. Clark** delivered his presidential address, taking as his subject the consideration of some forms of quackery. Any general discussion of quackery, he said, was far too big a subject for a single paper, and therefore he would limit his remarks to certain universal cures, brought forward by men of considerable medical knowledge, who nevertheless appeared to have genuinely believed that they had discovered a universal cure for disease. Most of these cures appeared to have some real or supposed connexion with electrical phenomena. About 1750 the idea began to spread that the mysterious new phenomena of electricity and magnetism were manifestations of a force which, if properly applied, would act as a remedy for all known diseases.

Francis Anthony Mesmer.

This vague popular idea was first exploited on a large scale by Francis Anthony Mesmer (1733–1815). Mesmer started with an interest in astrology, and wrote his thesis for the M.D. of Vienna on the subject of the influence of the planets on the human body. He next spent many years experimenting with the Imperial Astronomer, Père Maximilian Hell, on the effects produced by magnets when applied to the diseased body, and he attained considerable success by practising in Vienna along these lines. He discovered, however, that he could influence patients without magnets and even without touching them, and thus developed a form of treatment by suggestion. Professional jealousy drove him from Vienna, and he went to Paris in 1778, where he attained sensational success by methods which really consisted in treatment by suggestion reinforced by an imposing display of imitation electrical apparatus. Mesmer enjoyed the support of a large and powerful section of Parisian society, but his methods soon found imitators and the wholesale exploitation of hysteria forced the Government into action, and a strong commission was appointed, including amongst its members Lavoisier and Franklin. After five months' inquiry the commission decided that Mesmer's apparatus was incapable of producing any electrical or magnetic effects. They admitted that patients were profoundly affected, but thought that more harm than good was likely to be produced and recommended the suppression of Mesmer's practices.

The most interesting points about Mesmer's success are as follows: he really did discover something—namely, the extraordinary effects that suggestion can produce in disease; on the other hand, he firmly convinced both himself and his patients that a complex and imposing apparatus, his famous tub, possessed marvellous powers of healing by the magnetic force it exerted, and yet the tub was incapable of producing the slightest electrical effect of any kind. The general similarity between Mesmer's tub and Abrams's oscilloclast is very striking.

James Graham.

In 1780 James Graham, who had studied medicine in Edinburgh and had picked up some knowledge of electricity in America, began to exploit electricity as a cure for all diseases. He converted a large house in the Adelphi in London into one of the most remarkable palaces of quackery that has ever been known. This Temple of Health was furnished throughout with most lavish ornateness—statues, armour, painting, mmense pillars and globes of glass, remarkably arranged plates of burnished steel, and electrical apparatus of every description were included in the decorations. The general effect was intensified by soft music from an invisible orchestra and perfumes of spices. The chief shrine of the temple was the Grand Apollo Apartment; this contained a throne, and above the throne a crown was suspended from which electric discharges could be produced. Patients were treated by being placed on the throne and having electric discharges played upon them. Graham was a tall, handsome man of commanding presence, and he reinforced the attractions of his electric sparks by providing a strong sex interest. He gave a ecture on the cure of sterility, with an entrance of six guineas, and in the words of a contemporary reported: "He uses the plainest language in dealing with the parts concerned with generation, yet ladies as well as men crowd to hear him without scruple." Graham issued his lecture in pamphlet form at the price of a guinea, and even by modern standards it must be ranked as remarkably obscene. In addition, Graham's temple contained the famous piece of apparatus, his "celestial bed." This was an ornate couch around which electric discharges could be produced. The bed was guaranteed as a cure for sterility, and couples were allowed to use it on payment of a fee of £50. There was, however, another side to his character, for he gave very sound hygienic advice to his patients, recommending cold baths and fresh air, ideas that were then extremely uncommon. In the later years of his life Graham became insane.

Elisha Perkins.

Prof. Clark considered the vogue of Perkins's tractors to be the most interesting example on record of the udden rise and fall of a universal delusion regarding a universal cure. For many years Perkins, who was the on of a doctor and a graduate of Yale, lived as a uccessful practitioner in Connecticut; he was a man of fine physique and remarkable for his untiring nergy. He was respected by his fellow practitioners, and acted as chairman of the local medical society. His strong personality and devotion to his professional duties won him a high prestige amongst his patients, and he was much impressed by the amount of benefit hat patients appeared to derive from his mere presence. Perkins concluded that his personal influence was due to some occult magnetic force, and made experiments in treatment by the application of magnets and metals to the diseased parts. In the year 1796 he invented his famous metallic tractors. These tractors were two sticks of metal, about as thick as lead pencils, one looking like brass and the other like steel. They were made of a mixture of various metals, including silver and gold, and were sold for five guineas a pair. Perkins believed that these tractors were capable of benefiting or curing practically all diseases both of men and animals. Their method of application was as simple as the tractors themselves, for it consisted in simply drawing the tractors downwards over the affected part for 20 minutes, and no previous knowledge was apparently needed for their application. Perkins demonstrated the use of the tractors in a number of hospitals, and his methods were endorsed by numerous doctors and professors, and he received the support of many of the leading men of the country such as governors and judges. In 1799 yellow fever ravaged New York, and Perkins went there to combat the epidemic with his tractors; he caught the disease and died after five days' illness at the age of 59. This ending proved conclusively Perkins's absolute sincerity. Yellow fever was not a disease which anyone would encounter with a remedy which they knew to be worthless, but one would have imagined that his death would have raised doubts concerning the efficacy of his tractors. The vogue of the tractors was, however, undiminished, and reached its height in England. In 1804 a Perkinean Institute was founded in London, with Lord Rivers as president. The institute enjoyed the support of 8 professors of four different universities, 21 physicians, 19 surgeons, and 30 clergymen. It is said to have had a larger endowment than any other hospital in London. There was, of course, opposition to the prevailing craze. In 1799 a Dr. Haygarth, of Bath, performed a few experiments with the help of some friends. They explained fully and impressively to a group of hospital patients that a miraculous new remedy had been discovered, and proceeded to treat them with imitation tractors made of wood. The results were striking; most of the patients declared themselves immediately cured or greatly benefited, although one or two stated that the pain of the treatment was so intense that they could not endure it. The hospital was soon surrounded by an excited mob demanding treatment with the new remedy. The experimenters apparently had a rather difficult and dangerous time when they had to explain that the whole business was a hoax.

Perkinism was a true artistic triumph in that a maximum effect was produced with the simplest possible technique. Half the civilised world was induced to believe that any disease could be cured by drawing over the diseased part two sticks of metal for 20 minutes. Twenty years later when the bubble had burst it still seemed incredible to one who remembered the craze that the whole thing should have been a complete delusion. The idea that an enormous effect can be produced without any rational cause is offensive to the ordinary beliefs of mankind, and with every craze one hears the identical argument that there must be something in it because it is so widely believed and supported. Perkinism was a remarkably clear-cut demonstration of the falsity of this assumption, and the whole history of the process shows how completely judgment can be inhibited by mass suggestion.

Albert Abrams, 1863–1924.

Dr. Albert Abrams was a medical graduate of Heidelberg, and practised for many years as an orthodox practitioner in San Francisco. About 15 years ago he began to seek for a universal cure for disease, and first brought forward the cult of spondylotherapy, which was a blend of osteopathy and chiropractic, with some of the more glaring absurdities toned down. Spondylotherapy, however, was dwarfed by Abrams's next step, his discovery of the famous electronic reactions.

The electronic reactions of Abrams are obtained by two machines, one a diagnostic machine and the other a curative machine, of which the diagnostic machine was the original and fundamental "discovery." An examination of Abrams's publications, the lecturer said, showed that his ideas developed step by step from some theories put forward in 1913 by an electrician who detected by delicate galvanometers the well-known skin currents, and thought that their measurement would provide a means of diagnosing and locating disease. This theory advanced by an electrician with no knowledge of medicine was developed by Abrams, who had some knowledge of medicine, but apparently no knowledge of electricity. This accounted for the final bizarre form of his theories. Naturally Abrams was able to get equally good results whatever modifications were introduced into his apparatus, and his followers have found the same.

Abrams soon passed from the diagnosis to the treatment of disease. Starting from the fundamental idea that disease is due to derangement of the vibration rates of the electrons, he sought a method of altering these rates, and devised his oscilloclast, a form of electrical interrupter. The oscilloclast was intended to pass into the body electronic energy of the same wave-length as the erring electrons in the diseased tissue. Abrams's theories violated all the known laws of physics and physiology even more completely than did the theories of Perkins. The great expense of the machines rapidly provided a strong commercial interest in support of the electronic methods, and public interest was sufficiently aroused for a leading popular scientific paper, the *Scientific American*, to offer to undertake an impartial investigation of the whole matter. This proposal was endorsed by the electronists in general and Abrams in particular. The committee of investigation found, however, that it was practically impossible to arrange even the simplest tests, and the investigation which they imagined would take a few weeks took nearly a year. The final report, just published, simply stated that as far as the committee could ascertain the so-called electronic reactions did not even exist.

The general argument of the electronists was that tests were superfluous since they could support the truth of their claims by innumerable testimonials from patients cured of every kind of disease, but unfortunately, the lecturer said, history failed to record any variety of quackery that had failed to obtain testimonials from persons who had genuinely believed themselves to have been benefited by its methods.

The lecturer concluded by saying that these universal cures simply represented the old quest for the Elixir of Life in a new form, and arose to satisfy the fundamental craving of the mass of humanity for a miraculous cure for disease.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

A meeting was held under the auspices of this Association in the rooms of the Medical Society of London on Oct. 8th, with Dr. L. R. Lemprière, the President, in the chair, when a discussion took place on

The Relative Values of Stone-milled and Other Flours and Breads, &c., in Relation to the Nutrition of the Growing Child.

Dr. Robert Hutchison opened the discussion by pointing out that the subject had given rise to much controversy which was still continuing. He himself could claim to be fairly impartial, as although after considerable study of the question some years ago he had concluded that the balance of scientific evidence lay in favour of white bread, recent evidence, including that relating to vitamins, had to some degree modified his opinion, and he now thought that on the whole the advantage lay with stone-ground bread. He was, however, uncertain how great that advantage was. Dr. Hutchison then explained the important differences in the chemical composition of the various layers of the wheat berry. The outer protective covering, known as bran, consisted of two layers—an outer coat consisting chiefly of mineral matter and cellulose, and an inner coat with some protein. The endosperm forming the great bulk of the berry was formed mainly of starch with some granules of protein (glutein) interspersed among the starch. The germ or young plant formed only 1½ per cent. of the whole berry and consisted of protein, fat, and mineral constituents (especially phosphorus), with only a little starch. The water-soluble vitamin present was contained mainly in the germ and parts of the bran, while the endosperm was almost free from vitamins.

Modern roller mills usually produced a white flour containing about 70 per cent. of the berry from the endosperm only. The old-fashioned stone-ground flour contained about 80 per cent. of the berry, and included all the endosperm, much of the germ, and inner layer of bran. Hence the stone-ground flour was richer in proteins, phosphorus, and vitamins than the roller mill flour. The difference in total protein content was certainly not very great, since the inclusion of the whole of the germ would only raise the protein content by 0·6 per cent. above that of white flour, and in some cases it even happened that a white flour made from the endosperm of a strong wheat contained more protein than a stone-ground flour from a weaker wheat. But it was now realised that the quantity of protein was not the sole question; the quality might be even more important, since different proteins varied greatly in biological value and tissue-building capacity. The proteins of the germ were now known to be peculiarly valuable biologically, and worth much more than those of the endosperm. The recognition of this was one of the great advances in the subject made in the last 20 years. Phosphorus was another constituent in which stone-ground flour was superior. While little was known about the exact combination of this, it was undoubtedly present in a form available for growth and of real value. Vitamins were the third important constituent in question, but Dr. Hutchison would not discuss these in detail since other speakers would refer to them. With regard to digestibility, there was no appreciable difference between stone-ground and white flours if the breads were well made. Experience in the war showed that, if finely ground, even wholemeal flours were absorbed far more completely than had been supposed.

Considering the bearing of these facts on the nutrition of children, the speaker pointed out that a child had three especial requirements. First, abundant energy value or calories, of which it had been calculated that for growth in weight of 2 kilos a year alone a consumption of 800 calories a day was necessary. Secondly, a high protein content compared with that needed by adult life, and of the proteins some must be of good biological value. Much mineral constituents, especially phosphorus and iron, were also necessary. Lastly, sufficient vitamins were essential. The extent to which these requirements were met by the two forms of bread was as follows. In energy value both forms were sufficient. In protein content the wholemeal or stone-ground flour showed a definite advantage owing to the high biological value of its proteins. It was true that in children fed on an abundant mixed diet the protein content of their bread was not of great importance, since proteins of high biological value were best obtained from animal foods. But in children whose diet consisted chiefly of bread with only a little milk or meat, this difference in proteins between the two breads might make the whole difference between a good diet and a bad one. Similarly with the mineral constituents an abundant mixed diet contained plenty of calcium salts in milk and of phosphorus in eggs, but a diet composed chiefly of bread might easily be deficient, especially in phosphorus. The question of vitamins Dr. Hutchison preferred to leave to other speakers, but he considered that any opinion as to the relative values of white and stone-ground flours must depend mainly on the importance attached to these substances. He personally thought their importance was exaggerated at the present time, although he agreed that vitamins were necessary for healthy growth, and that their absence could cause certain diseases as beri-beri or scurvy. In 25 years at the London Hospital he had only seen one case of beri-beri (from the East) and one of adult scurvy (as distinct from the quite different infantile scurvy), and he considered that if diets were so frequently deficient in vitamins as to cause much vague general ill-health there would be a larger number of cases that fell over the borderline into fully-developed scurvy or beri-beri. He concluded that if a diet was right in the other respects, such as calories and protein content, the vitamins could be left to look after themselves. The best course was to aim at an abundant mixed diet, and the proper solution of the problem was to make food cheap and abundant. Given that, the vitamin question and that of white or wholemeal flour was relatively unimportant.

Dr. C. E. SHELLY (Haileybury) continued the discussion by saying that most of those present would agree with the general statements of Dr. Hutchison. He himself wished to call attention to three important facts bearing on the question. First, the experience of British and coloured troops in Mesopotamia during the war, as related by Sir David Bruce in his presidential address at Toronto. This experience showed conclusively that troops whether white or coloured suffered from beri-beri when fed on white bread, but were practically free from it when fed on native bread. Secondly, former prison experience showed that criminals doing hard labour would keep healthy on a diet of (stone-ground) bread and water. But nowadays a diet of white bread and water would kill a man in three weeks. This had also been proved to hold for rats and guinea-pigs. Similar experiments at Copenhagen showed that hard-working men could keep healthy for six months on a diet of wholemeal bread and margarine, but if fed on white bread and margarine they could scarcely walk after two weeks. Thirdly, the rise and development of every great civilisation was coincident with the intensive cultivation of wheat by the peoples concerned. From these facts it must be inferred either that white roller mill flour has a deleterious constituent added to it or that it is lacking in some necessary constituent of diet. Dr. Shelly then described in detail the process of grinding in stone mills and roller mills. In stone mills the whole berry was ground up together, forming wholemeal flour. Since this flour was said not to keep well, and since the bran was said to have an irritating action, the flour was then sifted through sieves of fine silk mesh, which retained almost all the bran and only very little of the germ. The product was called millstone flour and contained over 96 per cent. of the germ. Further sifting with finer sieves could be used to produce finer and whiter flours containing smaller percentages of the whole berry. The advantages of millstone flour were that it was a complete food sufficient in itself to maintain life; it was a cheap food, as although its cost was slightly greater than that of roller mill flour, bread made from it went farther as people ate less of it, and lastly it encouraged mastication, and was therefore of great value to children. In roller mills the germ was cut off the grain at the beginning of grinding and the bran removed by sifting. The germ and bran were sold as offal for pigs and cattle, and the white flour, deficient in proteins, phosphorus, and vitamins, was sold for human beings, often after bleaching by chlorine or hydrogen peroxide. Finally Dr. Shelly related some interesting experiments on the radio-activity of various samples of flour and bread as tested by photographic plates. Photographs were shown illustrating these experiments. He then concluded by emphasising the danger and unfairness of forcing children to take bread which did not contain the nourishment to which they were entitled.

Miss MAY YATES (Hon. Secretary, Bread and Food Reform League) pointed out that the question at issue was the percentage of the whole berry to be retained in flour, and not the type of mill in which the flour was ground. If the demand were sufficient modern roller mills could and would produce wholemeal or 80 per cent. household flour instead of white flour. It was therefore unwise to emphasise the terms stone-ground or roller-milled, and better to describe flour as wholemeal or 80 per cent. or white.

Dr. O. G. WARD described the process of roller mill grinding, and agreed that these mills could produce flour exactly equivalent in percentages to stone-ground flour.

Mr. J. A. GARDNER (St. George's Hospital) described nutritional tests on various flours made during the war. These showed that in digestibility and availability there was little difference between 80 and 90 per cent. flour. Such difference as was found was slightly to the disadvantage of 90 per cent. flour, which caused an increase of 50 per cent. in the dry weight of the stools of patients over that obtained with bread from 80 per cent. flour. This was on a diet of which bread formed 50 per cent. of the whole. Tests of the health of munition workers eating bread made from various flours for two months showed that 90 per cent. flour certainly did no harm to men, women, or children, even when their diet consisted largely of bread; and a few of the workers showed great improvement in health owing to the cure of chronic diarrhœa or constipation. After the test was discontinued the workers sent up a demand for the continued use of 90 per cent. flour.

Sir HARRY BALDWIN said that from the dental point of view he agreed with previous speakers, except that he considered avitaminosis was responsible for a great deal of the general ill-health now prevalent. A striking fact was the deformity and poor development of jaws and teeth, which had become widespread among civilised people in very recent times. He considered this partly due to avitaminosis in early life, and suggested that the prevalence of adenoids might be due to the same cause. Dental caries, while partly due to defective development, was largely due to local adhesion of sticky carbohydrate food to the teeth and gums, and subsequent lactic fermentation. In this respect fine white bread was undoubtedly worse than stone-milled bread. He himself used only stone-ground and wholemeal flour, and considered it most important that people should not be deprived of valuable constituents of diet in order to pander to a vitiated taste.

Dr. G. E. FRIEND (Christ's Hospital) said that for the last 22 years the boys at Christ's Hospital School had been given stone-milled bread made from 76 to 80 per cent. flour. In the last two years some bread from 90 per cent. flour had been introduced. This was popular if taken occasionally, but was disliked if provided as the sole form of bread. Dental caries—as shown by annual inspection—had declined from an average of four teeth per boy per year before the stone-ground flour was used, to about 1·7 teeth per boy per year at the present time. While not suggesting that this improvement was entirely due to the change of bread, the speaker did consider 80 per cent. bread of great value for the teeth, especially because it ensured proper mastication. Further advantages of such bread were increased oral cleanliness from its roughness, and a reduced tendency to constipation. Dr. Friend finally emphasised the importance of pressing for improvement in quality of the bread for the people.

Mr. CARTER gave his experience as a baker, and explained that most people would not buy wholemeal loaves but demanded white bread. If there was a demand for wholemeal bread bakers would be quite ready to make it.

After some further discussion the PRESIDENT concluded by saying that the general opinion of the meeting appeared to be in favour of 80 per cent. stone-ground flour. He therefore proposed that the following resolution should be sent to the head-masters of public and private schools and to other educational authorities as representing the opinion of one section of professional thought :—

"That whiteness of flour is not in itself necessarily an indication of its value as a food, but that natural germ-containing bread made from 80 per cent. flour tastes better and is more nutritious, particularly for growing children, and should be provided."

This resolution was seconded by Sir BRUCE BRUCE-PORTER and was carried unanimously.

An attractive exhibit was shown by Messrs. Prewett, of the Town Mills, Horsham, of wholemeal and mill-stone flours, and of biscuits, cakes, pastry, and bread made from them.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

POST-GRADUATE COURSE.

(*Concluded from p. 774.*)

IN addition to the lectures reported in our columns last week, the following were also delivered at the St. Mary's Hospital Post-Graduate Course held on Oct. 4th, 5th, and 6th.

Diet and Disease.

Prof. B. J. Collingwood said that our knowledge of diet rested on two foundations, laboratory experiment and clinical experience. So far as definitions were of value, a correct diet might be defined as one that maintained the normal composition of the blood and lymph. To attain this end there were five equilibria which must be satisfied in addition to the all-important question of vitamins. The water equilibrium : This was the most essential of all the equilibria. A sufficiency of water was the first necessity of diet, upon such sufficiency vital processes were dependent. A hunger strike might last for weeks ; a thirst strike would end in a few days. The calorie equilibrium : The maintenance of weight was evidence that this equilibrium was being maintained. The nitrogenous equilibrium : The clinical evidence of the maintenance of this equilibrium was the absence of muscular wasting. The mineral equilibrium : This equilibrium could look after itself except in cases where abnormal diet conditions prevailed, as, for instance, in certain parts of Africa where sodium chloride was almost unobtainable. The acid-alkali equilibrium : This could be upset towards the acid side by a diet extremely rich in fat, and very deficient in carbohydrates and proteins.

To understand the principles underlying diet in diseases of the alimentary canal, it was necessary to utilise our knowledge of the functions of the stomach, the small intestine, and the large intestine. The stomach absorbed no food, unless one were to class alcohol amongst foods, and since a large proportion of alcohol consumed was oxidised in the body, alcohol was, in that sense, most certainly a food and a source of energy. The small intestine was the only portion of the alimentary canal which absorbed food to an appreciable extent. The large intestine absorbed practically nothing beyond water. Nutrient enemata only nourished the bacteria of the intestine. Minute amounts of amino-fatty acids might, indeed, be absorbed. As to carbohydrates, if a diabetic on a diet just within the limits of carbohydrate tolerance were given an enema containing a large amount of dextrose, none of that substance appeared in the urine. Carbohydrate, if absorbed, was absorbed only in small traces. The lecturer said that the application of these facts to diseases of the alimentary tract was the foundation of correct dietary. If, for instance, the food for any reason—e.g., pyloric stricture—could not reach the small intestine, we must utilise saline enemata, remembering that these could maintain the all-important water equilibrium but none other. (In a discussion after the paper, the possibility of utilising intra-peritoneal injections of dextrose was suggested.) If, on the other hand, the large intestine was diseased—e.g., dysentery—the diet should be such as would leave no residue of undigested food to pass through the ileo-cæcal valve. In diseases of metabolism such as diabetes and gout, the objects of dietary were to maintain the above equilibria with a minimum of such articles of diet as was inimical to the morbid condition—i.e., carbohydrates in diabetes and nucleo-proteins in gout. The treatment of the albuminuria of pregnancy by a purely water diet was an example of the fact that the body suffered little if the water equilibrium were maintained, although the calorie and nitrogen equilibria went entirely to the wall.

Surgical Treatment of Gastric Ulcer.

Prof. C. A. Pannett said that he believed gastric ulcer was a comparatively rare disease, although there were always cases of it to be found in hospital. The essential treatment of gastric ulcer, he said, was initially always medical and never surgical, but under medical treatment there were a certain number of cases which would not get well. The pathologist looked on gastric ulcers as true digestive ulcers. In the evolution of the condition there was a time when there was loss of resistance to digestion. The chief factor in the prevention of healing was held to be infection, and secondly, the irritating nature of gastric juice which formed thick fibrous tissue round the ulcer. This fibrosis rendered all tissues in the neighbourhood of the ulcer rigid. The important question from the surgeon's point of view was which type of ulcer would heal and which would not, and here the X ray was of inestimable service. If a burrowing ulcer surrounded with fibrosis were present the X ray picture showed on the taking of a barium meal a niche at the site of the ulcer, usually on the lesser curvature, and opposite to that there was sometimes a spastic notch in the greater curvature. Some observers abroad stated that they could diagnose successfully more than 90 per cent. of cases by these means, but the figures at St. Mary's Hospital were rather between 70 and 80 per cent. The diagnosis of ulcer on the posterior wall of the stomach was a more difficult matter, but the fixation of the organ gave a clue when the patient was in the erect posture. Where there was a definite niche, unless it was of extremely small size, Prof. Pannett said, it was impossible for natural healing to take place, and operative treatment was called for. Where no niche could be discovered and yet pain was a regular and recurrent symptom, then he considered operation should also be advised, since every ulcer cannot be visualised by X rays. The general pathology of duodenal ulcers was very similar to that of gastric ulcers, but duodenal ulcers were more likely to be multiple, and they were usually of smaller size when they came into the surgeon's hand. They could, on the whole, be induced to heal more readily, perhaps because they gave symptoms earlier. It was much more difficult to come to a positive conclusion by X rays because of the position of the duodenum behind the stomach and also because the duodenum filled for a time then collapsed ; therefore exposure must be timed when the duodenum was actually filled. The indications for operation in duodenal ulcer were, when medical treatment proved ineffective, and secondly, where a definite niche was seen on the skiagram. The operation Prof. Pannett advised for ulcer high on the lesser curvature was a sleeve resection. This gave excellent results. Billroth I. was performed when the ulcer was nearer the pylorus, but there was a revulsion nowadays, he said, against gastro-jejunostomy. This latter operation, however, was useful when the ulcer had healed and formed an obstruction. The occurrence of failures, even after successful operations, should be explained, he said, by the patients losing antipeptic power.

The Diagnosis of Acute Right Hypochondriac Pain.

Mr. Zachary Cope said that the right hypochondrium was packed with important viscera, all of which moved slightly with the excursion of the diaphragm ; these viscera were so closely related together that if a sword with a blade 2 inches broad were thrust with precision through the centre of the region it would injure eight important structures—to wit, liver, gall-bladder, duodenum, pancreas, kidney, colon, the diaphragm, and the pleural cavity, not to mention the suprarenal. It was clear, therefore, that the problem of differentiation of the pains which took origin in this region was fraught with difficulty and was worthy of special attention. The first thing to be decided was whether the source of the pain was above or below the diaphragm. This was not always so easy as might appear at first sight. Both cardiac and pulmonary disease might give rise to acute pain in the right upper quadrant of the abdomen. With cardiac failure due to an anginal attack the liver might become acutely engorged and painful and vomiting sometimes occurred; such a condition might at first simulate an acute abdominal condition—even a perforated gastric ulcer. In differentiating the two conditions it was necessary to note the enlargement of the liver and of the right side of the heart, and to look carefully for venous pulsation in the neck. In both heart failure and perforated ulcer the pulse might be small and irregular at first, but in the abdominal condition the pulse generally became almost normal after the first shock of perforation was over. With diaphragmatic pleurisy and pleuro-pneumonia on the right side one might find an extremely close simulation of disease in the right hypochondrium—a simulation which must have at times baffled every practitioner of medicine and surgery. The lecturer then briefly explained how a distinction could always be made with certainty by contrasting the main symptoms. Of all the points of distinction he attached most importance to (1) the presence of fever at the beginning of a thoracic condition, (2) the previous history of indigestion or chill, and (3) the infrequency of vomiting in adult pleuritic conditions. There were some symptoms which were never due to thoracic disease—e.g., testicular pain, pain on moving the right psoas, and hyperæsthesia of the abdominal wall below the umbilicus. There was one symptom, not often present, which he had nearly always found due to thoracic disease—i.e., pain referred to the subclavicular fossa. Most of the symptoms, such as rigidity of the abdominal wall, increase of the respiration-rate, fine râles in the chest, absence of much air entry at the right base, could be found equally well in either group of cases, and in some cases it might be impossible by ordinary clinical examination to tell for sure whence the pain arose. In such cases it would not be justifiable to give a general anæsthetic and explore, but it was justifiable to give morphia and a local infiltration anæsthetic and make a small 1-inch incision into the right side of the abdomen. The presence of a serious condition might then be ascertained or excluded and the further treatment made plain.

Of the affections of the viscera in the right hypochondrium one must consider biliary colic, cholecystitis, perforated or leaking duodenal ulcer, and infection of the kidney. With *biliary colic* there was often some premonitory uneasiness before the acute pain started; the pain sometimes was felt right across the upper abdomen and usually went through to the right subscapular region. It was not felt on the top of the shoulder unless there were in addition some local peritonitis irritating the diaphragm. The abdominal wall was not usually rigid. With *cholecystitis*, which extended through to the peritoneal coat, there was local rigidity of the abdominal wall, tenderness on pressure, and sometimes pain in the right supraspinous fossa. Jaundice was exceptional and slight. Fever was present. With an *acutely perforated ulcer* of the duodenum there was not, as a rule, much difficulty in diagnosis; the history of acute indigestion, sudden onset of pain, collapse, and the local signs in the abdomen were usually clear. Pain in the right supraspinous fossa was common. With a leaking ulcer of the anterior wall only the history might enable to distinguish from cholecystitis. With a *leaking ulcer of the posterior wall* the difficulty in diagnosis might be very great. The proximity of the renal pelvis to the back of the duodenum caused renal symptoms and tenderness at the right erector-costal angle. In such cases it was easy to take the condition for an infection of the kidney. The history was the most important factor in determining, and the exact mode of onset was always to be ascertained. *Infection of the kidney* was often preceded by a rigor, and there was usually fever of 102° or 103° F. Tenderness at the right erector-costal angle was very definite, and there were usually urinary symptoms at the onset. Afterwards the ureter might become closed and a tender renal swelling develop. With a *perinephric abscess* the onset was less acute and was often preceded by the occurrence of boils or of a whitlow. Fever was not high—about 100°—and there were usually no urinary symptoms except tenderness at the erector-costal angle.

The Investigation of a Case of Puerperal Fever.

Mr. Aleck Bourne said that it was important to distinguish between fever of non-puerperal origin, local uterine infection, blood infection, and a local extra-uterine lesion such as a pelvic abscess. Considerable assistance might be obtained by noting the time of onset of pyrexia in relation to the delivery. Thus fever of the first four days was likely to be of uterine origin, with or without extension of infection into the blood-stream, while at a later date it was more likely to be due to a local lesion such as thrombophlebitis, cellulitis, or salpingitis. It should always be remembered, however, that a urinary or mammary infection might cause high temperatures at any stage of the puerperium. The exploration of the uterine cavity should only be carried out when it was possible to remove something, and the only thing that could be satisfactorily removed, or needed removal, was a placental fragment. Membrane and clot would disintegrate and come away spontaneously, but placenta certainly required digital removal in most cases. The diagnosis of whether placenta was retained, and therefore the indication for exploration of the uterus, was the occurrence of hæmorrhage during the puerperium, especially if it occurred in gushes, and was repeated. Mr. Bourne said that bacteriological examination of the urine was essential in all but the most obvious cases of infection elsewhere, as bacilluria was so frequently a cause of puerperal fever. A culture from the cervical canal and even from the blood was useful for purposes of prognosis, and for making a vaccine should it be desired to institute vaccine treatment. In all cases a complete examination of the patient should be made, including careful inspection of a perineal laceration.

Dr. J. B. McDougall took as his subject

Some Practical Points in the Diagnosis and Treatment of Pulmonary Tuberculosis.

The lecturer referred in some detail to the work of Pottenger, of America, and discussed the influence of parenchymatous changes in the lung tissue with special reference to the effects which these have on the skin, subcutaneous tissues, and muscles. He traced the path of the reflexes usually found and instanced the great value which these surface changes had in diagnosis of acute exacerbations of pulmonary disease and in the diagnosis of chronic lesions. Muscular spasm or tension was an invariable accompaniment of acute parenchymatous disease, and atrophy of the skin, subcutaneous tissue, and muscles was to be seen in the more chronic forms of chest disease. He pointed out that the pathological changes in the soft tissues were for the greater part based on reflex motor and trophic disturbances which are a result of acute and chronic changes within the lung, the most common cause being pulmonary tuberculosis. The lecturer then dealt with percussion, and pointed out the great difficulty physicians had in giving practical application to the terms "light weight" and "heavy" percussion. He considered the purely muscular aspect of the question and recommended that percussion be divided into three species. The first species included the percussion stroke in which the finger alone is used, extension and flexion occurring at the metacarpophalangeal joint; the second species was that in which the hand and finger may be moved together, but at different rates, and the third species that in which the forearm may be used along with the hand and finger, flexion and extension taking place at the elbow, wrist, and metacarpophalangeal joints. At all times it was best to begin with the first species and "feel" for resonance. If the first species failed to elicit resonance then the second species might be employed, but not till the first species had failed. It was only rarely necessary to use the third species. If the second or third species were used before the first then there was a grave danger that areas of impaired resonance would be overlooked, inasmuch as the louder notes produced by the heavier varieties would set in vibration healthy lung tissue adjacent to diseased patches. It required the lightest possible percussion stroke to determine small areas of tuberculous infiltration, and he strongly recommended that the first species of percussion be employed in every case until it had failed to produce resonance. The lecturer then quoted some observations which he had made on the total leucocyte count in cases of pulmonary tuberculosis, and expressed the opinion that consecutive white-cell counts gave frequently reliable information as to the presence of active disease. He considered the possible causes of the phenomenon of the "leucocyte swing," and thought that they might be produced by a process of negative chemiotaxis. There was no evidence that they were associated in any way with anaphylactic phenomena. In conclusion, the artificial pneumothorax apparatus of de Carle Woodcock was demonstrated, and its use in cases of partial or selective collapse was mentioned. The lecturer also detailed one or two cases in which he had been successful in treating cases of spontaneous pneumothorax by aspiration of gas under manometric observation, aiming always at keeping the intrathoracic pressure above that of the atmosphere.

Reviews and Notices of Books.

Chemistry of the Blood in Clinical Medicine.

By O. L. V. de Wesselow, M.B., F.R.C.P., Chemical Pathologist, and Physician to Outpatients to St. Thomas's Hospital. London: Ernest Benn, Ltd. 1924. Pp. 255. 15*s*.

In his preface Dr. de Wesselow announces his intention "to describe concisely those aspects of the subject which are of interest to the clinician," and in the twelve chapters contained in this book the attention of physicians and surgeons is directed especially to the clinical applications of blood analysis. The first chapter deals exclusively with the composition of normal blood; the next three, comprising about half the book, treat respectively the subjects of acidosis and alkalosis, the blood-sugar, and nephritis. Chapter V. is devoted to blood-findings in tetany, whilst the remainder contain accounts of rickets, gout, fats and lipoids, hydræmia and anhydræmia, anoxæmia, miscellanea, and, finally, methods.

In the chapter on normal blood, the constituents, such as urea, non-protein nitrogen, &c., are considered, and their normal concentration and significance in the blood are discussed. Although we agree with the author that highly technical discussions would be out of place in his book, we feel that he has rather neglected an opportunity here in not briefly describing the normal metabolism. This section gives rather a static conception of the blood constituents, whereas the true one must certainly be dynamic. Thus there is no account of the interrelations between the urea, amino-acid, ammonia, and non-protein nitrogen content of the blood, and the description of each constituent is isolated, whereas a brief account of metabolism would draw the subject together. It is doubtful if any reader who has not made a study of modern chemistry could follow the description of the meaning of pH; and the acid-base equilibrium of blood is rather sketchily described. Apart from the fact that the physiological conditions are dealt with in rather a hurried manner, the chapter devoted to acidosis and alkalosis, which consists mainly of a summary of the literature, is very good indeed. The author has described the clinical applications of blood analysis to these conditions in a very full and complete manner. In Chapter III. the explanations of the rise in blood-sugar content following the intake of glucose would not find favour with several authorities upon this problem. For instance, the work of P. J. Cammidge and of K. M. Hansen is not mentioned at all, nor is there any reference to that of certain American observers who used very large doses of glucose. The clinical importance of the blood-sugar content is admirably described, and many little known but important phenomena are given. Thus the author calls attention to the lowered leak-point in early diabetes mellitus, when it is quite common to find sugar in the urine with a normal blood-sugar content. This almost unknown fact is of the greatest importance when one considers the number of physicians using the sugar content of the urine as their only means of regulating insulin dosage. The fourth chapter, on nephritis, consists of a summary of those views for which St. Thomas's Hospital Medical School has become famous. This section deals very fully with the significance of nitrogen and salt retention in the blood, and is obviously written by one who has had wide experience in this type of work. Nearly two pages are allotted to Ambard's coefficient, which is condemned, while relatively few lines are devoted to Addis's ratio, though it is stated that such a procedure "is the only method by which a defect in the amount of renal tissue present could be detected." For details of this method the reader is referred to the original paper, but many would be glad to have them set out here. No mention of A. Epstein's work is to be found in this chapter. The final chapter on methods is a little disappointing, inasmuch as only for a very limited number of the constituents dealt with in the preceding chapters is the method of estimation described, and different techniques for each are given. The disadvantage lies in the fact that for blood urea 3 c.cm. of blood are used, for non-protein nitrogen 3 c.cm. of blood are precipitated with trichloracetic acid, for creatinin 5 c.cm. of blood are precipitated with picric acid, and so on. By the methods recommended, at least 20 c.cm. of blood would be required for the estimation of urea, non-protein nitrogen, sugar, creatinin, and chlorides. Moreover, the blood proteins have to be precipitated separately for each estimation. We would suggest that Folin's system of blood analysis is preferable, where one protein-free filtrate can be used for all the above estimations, which, with several additional constituents, such as amino-acid and nitrogen, can be performed on 6 to 10 c.cm. of blood.

The volume deserves a warm welcome, since it is the first to appear on this subject by an English author. That Dr. de Wesselow is one of the most competent of his countrymen to write such a book cannot be doubted, and as a clinical work its value is very great. An excellent series of references is given; in a future edition, which is sure to be called for, they might with advantage be numbered in the text.

Renal Disease.

Modern Methods in the Diagnosis and Treatment of Renal Disease. Second edition. By Hugh MacLean, M.D., D.Sc., Professor of Medicine and Director of Medical Unit, St. Thomas's Hospital. London: Constable and Co., Ltd. 1924. Pp. 110. 12*s*.

Since the first edition of this monograph is so well known it is unnecessary to enumerate its contents; the second edition differs only in detail from the first. Drawings representing the microscopic appearance of certain renal lesions have been included, and the chapter dealing with the value of blood analysis has been considerably expanded.

As before, the introductory chapter, dealing with the theories of renal secretion, is clearly written, and, it must frankly be said, far superior to that found in the majority of physiological text-books. It is one of the few brief and lucid accounts of this difficult subject in the English language. The succeeding chapters describe the symptoms and signs, investigation and treatment of renal diseases. Records of a series of typical cases are included with valuable comments. To one or two statements exception might be taken. Thus, the author says that the estimation of non-protein nitrogen "is a somewhat lengthy and difficult process, necessitating care and some technical skill if the results are to be depended upon," and that "quite as much information is to be derived from the much simpler process of estimating the urea present." But surely nothing could be simpler than the estimation of non-protein nitrogen by Folin's method, whilst many authorities hold that the non-protein nitrogen content is a safer criterion than the blood-urea. Again, on p. 64, Prof. MacLean, speaking of the diastase test, says, "It is easy to carry out and very helpful as a rule in conjunction with the urea test." On the next page but one, however, he adds, "Personally, I attach very little importance to this test." The importance of allowing for the acidity and salt concentration of the urine in the estimation of diastase has been emphasised by many workers; the technique here described takes no account of these complications.

One factor at least which must have contributed very largely to the success of the volume is that the purely clinical observations, such as blood pressure, have not been lost sight of. The well-balanced chemical and clinical opinions make the monograph of the utmost value to all concerned with nephritis.

1700 MILES IN OPEN BOATS.

By CECIL FOSTER, Master Mariner, Captain of the s.s. *Trevessa*. London: Martin Hopkinson and Co. 1924. Pp. 173. 10*s.* 6*d.*

MANY of us have seen at Wembley, in the Ceylon court, the battered ship's boat in which Captain Cecil Foster, without chart, compass, or chronometer, sailed 20 men of the sunk *Trevessa* 70 miles a day for 23 days from the middle of the Indian Ocean to the north end of Rodriguez Island, only six miles from north to south, a wonderful landfall. But even more marvellous was it that, on the passage, in spite of severely restricted rations, he only lost two out of his 20 men. The total ration expenditure was 50 lb. of biscuit, 100 tins of milk, and 8 gallons of water, from which the average daily expenditure seems to have been 1¾ oz. of biscuit (at 8 A.M.); ¼ tin of milk (issued as a cigarette-tin lid-full at 8, noon, and 4); and 2¾ oz. of water (at 2 P.M.). The other boat under the chief officer sailed 200 miles farther in three days more, and reached Mauritius. What risks, even in these days, insistently dog seamen! How quickly a dangerous situation may develop at sea! On Sunday, June 3rd, 1923, *Trevessa*, of 3000 tons and 10 knots, was lying-to in heavy weather; at 10.30 P.M. the outlook for next day seemed more hopeful, and the situation caused no anxiety. At midnight M. Scully, A.B., came up on the bridge and reported he could hear water washing about in the forehold under the forecastle. On deck nothing appeared to be wrong, but the captain and the chief engineer went down to the forecastle, and, laying their ears to the deck, heard, above the noise of the storm, water swishing about below them. The ship was sinking, like the *Titanic*, by the head on an even keel. At 1 A.M. the captain gave the order to abandon ship, and at 2.15, though in a gale, the two boats, by very fine seamanship, were got away safely, with every man in them and with extra water, biscuits, and milk. At 2.45 the ship sank by the head. Luckily for the crew, Captain Foster was not without special boat experience. Torpedoed twice in one day in the war, he had had to sail 320 miles in an open boat in the North Atlantic, and he was now to prove a regular foster-father to his men. On the first day he gave them a biscuit but no other ration, no water; they could that day do without. Also he got all food arranged so it could not be secretly pilfered. Their difficulty was water, but they had rain they could catch on nine of their 23 days, and their methods for catching it (illustrated in the book) were most ingenious. Very soon their mouths became dry and slimy. Often they could not eat the biscuits, but, after chewing them, could blow them out of their mouths as dust. The milk was their greatest support, and that is why, no doubt, the Board of Trade has arranged that, from July, 1925, all ships' boats shall always have in them, in addition to the 1 quart of water and 2 lb. of biscuit per man already ordered, 1 lb. of condensed milk for each person who might be carried in emergency. Their water ration was treasured to the last drop; indeed, had they not been able on two or three days to catch as much water as they wanted from rain, they could not have lasted out. Captain Foster also made them sniff seawater up their noses, not swallowing any, and keep their heads and necks wet, which relieved thirst a little, and he also made them rub their feet when they swelled. The crowding in the boat and the boat's constant rapid oscillation were persistent hardships.

A simple, direct record of hardships stoutly faced, this book will be read by many, and given to boys at Christmas, it will surely send some of them to sea, while all its readers will feel that Captain Foster, Chief Officer J. C. S. Smith, and their companions, well deserved the reception and honours given them on their arrival home. A story reflecting greater credit on the seamanship, knowledge of navigation, thoughtfulness for his crew, and power of command of the captain of a ship, and of good discipline and good humour in a crew in difficulties, has rarely been told; and never more modestly. It should be in every ship's library. The book is well printed, illustrated, and indexed.

PRACTICAL DENTAL HISTOLOGY AND BACTERIOLOGY.

By H. C. MALLESON, L.R.C.P., M.R.C.S., L.D.S., and A. BULLEID, L.R.C.P., M.R.C.S., L.D.S., Assistant Dental Surgeons, Guy's Hospital. London: John Bale, Sons and Danielsson, Ltd. 1924. Pp. 72. 7*s.* 6*d.*

THIS is an admirable and practical book which fills worthily a gap in dental literature. The instructions are clear and concise, and should prove very useful to the dental student. Dental histology is admittedly a difficult branch of general histology, and calls for skilled technique owing to the fact that so many preparations consist of hard and soft tissues together. It cannot be expected that the dental student can become in any degree proficient in histological technique. He must, as Mr. Norman Bennet states in his introduction, be dependent on others to a considerable extent, but it is desirable that he should be familiar with the special methods employed in dental histology were it only that here and there a student may become sufficiently interested to take up this work and carry on the great traditions of the dental histologists of the past. The section on dental bacteriology, for which Mr. Bulleid is responsible, presents a more difficult task than that on dental histology. In no sense can dental bacteriology be called a special branch of general bacteriology, and if this section is less satisfactory, the fault lies with the subject itself rather than the author. As a guide to a practical course of laboratory work it would prove useful, but, unfortunately, no such course is compulsory at present for the dental student. Yet even in the absence of such a course the student should learn some useful knowledge from the notes on practical dental bacteriology. The book is well illustrated and the price is moderate. A few blank pages on which the student could make notes of methods not mentioned here would prove a useful addition in succeeding editions.

DIGESTIVE DISORDERS.

The Treatment of the Common Disorders of Digestion. By JOHN L. KANTOR, Ph.D., M.D., Chief in Gastro-intestinal Diseases, Vanderbilt Clinic, Columbia University; Associate Gastro-enterologist and Associate Roentgenologist, Montefiore Hospital for Chronic Diseases, New York City. London: Henry Kimpton. 1924. Pp. 245. 24s.

THIS beautifully illustrated volume discusses in 15 chapters the treatment of various disorders of the alimentary tract; we say "various" because the scope of the work is general rather than particular, and it would be easy to enumerate a long series of conditions of relatively frequent occurrence, which are not mentioned. This is at once the strength and the weakness of the volume, for it stresses the management of many common disorders and perhaps tends to encourage hasty diagnosis which may prevent effectual treatment. Some of the author's views, particularly those which he gives on achylia gastrica, are not in accordance with accepted teaching, nor are they, we believe, sufficiently supported by facts to justify the departure. The real value of the book lies in the illustrations, which are well chosen and beautifully reproduced.

Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anæmia and Asthma. By ARTHUR F. HURST, M.A., M.D. Oxf., F.R.C.P., Physician, Neurologist, and Director of Advanced Studies, Guy's Hospital. London: William Heinemann (Medical Books), Ltd. 1924. Pp. 306. 21s.

WE welcome this volume of collected essays by Dr. A. F. Hurst. Its contents have in many instances appeared in the pages of this and other medical journals, and the author in his preface states that his object in republishing these papers is to express his present views on subjects where the advance of knowledge makes final judgment impossible. The field covered is a wide one—asthma, Addisonian anæmia, diseases of the stomach, gall-bladder, and appendix, and the hysterical element in organic disease being the chief subjects. In every case Dr. Hurst treats his subject with lucid and original intelligence, and there is no surgeon or physician in the country who will not read this volume with profit and, we believe, with interest.

SOME GERMAN WORKS ON TUBERCULOSIS.

Diagnostik und Therapie der Lungen- und Kehlkopftuberkulose. By Dr. H. ULRICI, Aerztl. Direktor des Städt. Tuberkulosekrankenhauses, Waldhaus, Charlottenburg. Sommerfeld (Osthavelland). Berlin: Julius Springer. 1924. With 99 illustrations, some coloured. Pp. 263.

THIS beautifully illustrated work is well suited to readers anxious to learn the latest and most important advances in the diagnosis and treatment of tuberculosis of the lungs and larynx. As one illustration shows, a binocular instrument is now available which enables three persons to see the same laryngeal picture at once. Of the value of this device, both to the student and the patient, there can be no question. Other modern procedures, of which the author gives a full and illustrated account, are thoracoscopy with cauterisation of pleural adhesions, and the Fahraeus test—the rate of sedimentation of the erythrocytes. The chapter on the specific and non-specific treatment of tuberculosis with such substances as tuberculin and non-specific proteins is short; the author has felt constrained to mention such methods as those associated with the names of Ponndorf and Petruschky, but he takes his revenge by subjecting them to a blighting criticism. With regard to the classification of pulmonary tuberculosis, it is worth noting that German authors, like Dr. Ulrici, generally adhere to the Aschoff school, distinguishing from the point of view of diagnosis and prognosis between the "productive" and the "exudative" forms of the disease. Dr. Ulrici adds a third form, "cirrhotic" phthisis, which possesses certain clinical characteristics of distinctive importance. This classification differs considerably from the one in vogue in this country, where students are taught to distinguish between broncho-pneumonic, pneumonic, fibro-caseous, fibroid, and pleural types. Dr. Ulrici's book deserves popularity; it is not too elementary for the specialist, nor too erudite for the general practitioner.

Die Behandlung der Kindlichen Lungentuberkulose mit dem Künstlichen Lungen-Pneumothorax. By Dr. HELENE ELIASBERG and Dr. PHILLIPP CAHN. Berlin: S. Karger. 1924. Pp. 54.

THIS is a very instructive little monograph, dealing with the artificial pneumothorax treatment of 125 children whose ages ranged from 4 months to 14 years. It used to be thought risky to collapse part of one lung in a child, but the authors have induced a partial pneumothorax in some of their cases on both sides simultaneously. Their material is hardly suitable for estimating the value of this treatment because it has been considerably modified from time to time, and the class of case selected for it has also greatly changed. Thus, in the period 1914–16 this treatment was almost exclusively reserved for cases of pulmonary tuberculosis with cavities, and it was seldom that the pneumothorax was maintained for more than half a year. With increasing experience the authors have extended their indications for this treatment to many cases of "closed" hilus tuberculosis, and have maintained the collapse of the lung for two or three years or even longer. Their results have, of course, improved greatly in consequence of these changes, but it is doubtful if lung collapse treatment for closed hilus tuberculosis in childhood will ever be extensively adopted; the procedure savours too much of rushing to the aid of the victor, of giving aid where it is hardly needed. There were, however, as many as 50 sputum-positive cases in this series, and 13 of the patients are still alive. But only six of these 13 were rendered sputum-negative and free from cough and fever. Considering how bad the prognosis is for sputum-positive tuberculosis in childhood, a recovery-rate of 12 per cent. is not to be despised.

Die Klinik der Beginnenden Tuberkulose Erwachsener. Vol. II., *Der Formenkreis der Tuberkulose.* By Prof. WILHELM NEUMANN, Privatdozent an der Universität Wien. Vienna: Julius Springer. 1924. Pp. 265.

THIS is a work with neither a table of contents at the beginning nor an index of contents at the end; so the reader must needs plunge into the work itself before he can get a bird's-eye view of the whole. But he will be repaid for his plunge. There is, indeed, very little about the treatment of early tuberculosis in adults, and for this reason the book has a good chance of still being up to date a score of years hence, which is more than can be prophesied for most books on tuberculosis. Great care and much space are devoted to the classification of the numerous manifestations of infection with the tubercle bacillus, the basis of the classifications being rather pathological and anatomical than clinical. Useful hints are given with regard to the simulation of rheumatism, neurasthenia, and various other complaints by early tuberculosis, and with regard to neurasthenia, in particular, it would be well if the apostles of psycho-analysis and treatment by suggestion would bear in mind that the neurasthenic is often the product of a drawn battle between the tubercle bacillus and the human tissues. Undoubtedly, this is a book crammed with much useful information by one who has been able to draw on a carefully studied and well-digested material.

THE LANCET.

LONDON: SATURDAY, OCTOBER 18, 1924.

A HOSPITAL CLEARING HOUSE.

LAST April the Minister of Health requested the Voluntary Hospitals Commission to inquire into and to report upon the extent of the additional voluntary hospital accommodation required in England and Wales and the best means of providing and maintaining it. In his foreword to the Red Cross report[1] on voluntary hospitals, which we briefly noticed a week ago, Sir ARTHUR STANLEY suggests that this reference to the Hospitals Commission should be extended. He would like inquiry to be made into the general need of hospital accommodation, the special categories in which the need of further accommodation is felt, and the possibility of supplying that accommodation, in part at all events, by better coördination and coöperation. And in this demand for a wider inquiry Sir ARTHUR STANLEY has the support of the British Hospitals Association. Dr. F. N. KAY MENZIES, who wrote the Red Cross report, deprecates the slightly apologetic attitude which the voluntary hospital system has adopted during a recent time of financial stress, and claims that the immense volume of work for which the voluntary system makes itself responsible is carried out more efficiently and more economically than it could be by any other known method or system. But at the same time he is keenly aware of the urgent need for extension of hospital facilities in certain directions, and it is not the voluntary hospitals alone which are concerned. As he pointed out to the annual meeting of the Hospitals Association last summer, at least four-fifths of the treatment available for the sick in the London area is already provided for out of rates and taxes, and it is easy to understand, although none the less to be regretted, how faulty has been the coöperation between voluntary hospitals and the developing municipal services. When, in 1909, the Education Administrative Provisions Act resulted in the gradual introduction of a medical service into public elementary schools, the growth of this service was so rapid that in a short time the number of London school-children examined ran up to more than 250,000 per school year. It could have been foreseen that medical examination was bound to be followed by demand for treatment, when steps might have been taken to forestall the flooding of the out-patient departments of voluntary hospitals with school-children suffering from various ailments to a degree which was little short of a public scandal.

The school medical service was, however, only the forerunner of a series of other medical services to be undertaken by local authorities, and now quite apart from the fever hospitals and mental hospitals the municipality of London has undertaken to deal with tuberculosis in 2400 beds and 33 dispensaries, with venereal diseases in 28 clinics, with maternity and child welfare at 220 centres, and to remunerate medical practitioners called in under the Midwives Act. These services are certain to expand still further in certain directions, such as the safeguarding of maternity, the care of infantile paralysis, and of the various manifestations of rheumatism in children. And it will need the collaboration of all the hospital authorities of the country to ensure that the expansion is well and truly engineered. It would be entirely unfair for the Hospitals Commission to find that such and such a voluntary hospital is failing to do its duty to the sick in any area until it has been definitely established whether the public authorities in that area are doing their duty to those for whom they are legally responsible. This cannot be determined without a comprehensive survey of existing facilities for the treatment of the sick, whether in voluntary or public institutions. Careful inquiry is needed in each county area as to the extent of all the facilities available for the treatment of the sick and the extent to which they are utilised. Dr. MENZIES outlines the scope of such a survey thus:—

> 1. Each county area will have to be carefully investigated in order to ascertain not only the exact amount of institutional accommodation for the sick (Voluntary, Poor Law and Public Health), but also all other facilities for diagnosis and treatment such as Dispensaries, Maternity and Child Welfare Centres, Clinics, &c.
>
> 2. Having ascertained this information, then it will be necessary to classify it into the various categories—Surgical, Medical, Special Departments, Mental, Fever, Chronic Diseases, &c.
>
> 3. The next step would be to ascertain from Medical Officers of Health, Medical Practitioners, Clergy and Ministry, and Social Welfare workers, as well, of course, as the Hospitals themselves, in what respects their experience proves there is a real deficiency.
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> 4. Then, with a full and complete knowledge of the facilities available and the deficiences found by experience, it would be wise to consider how far known needs could be met by re-arrangement of existing facilities—how far additional Auxiliary Hospitals, Recovery Homes, and Convalescent Homes could meet the need by relieving the larger and more expensive Hospitals of cases now dealt with—how far Public Health Authorities could relieve Voluntary Hospitals of cases of Tuberculosis, &c.
>
> 5. Lastly, how far, after such re-arrangement, a real need existed for additional Hospital accommodation, whether Voluntary, Poor Law, or Public Health. It would not necessarily mean any additional Voluntary Hospital accommodation in every area.

This would mean a searching survey, but only after it has been made shall we know what gaps are left unfilled by either voluntary or public authorities. The need for a central bureau of hospital information becomes more apparent every year. Such a bureau should be available both for voluntary and public hospitals, and if properly run it would prove a trustworthy source of information on the countless difficulties which arise in hospital administration. A hospital committee may need information on technical points of architecture and engineering, on the supply and preparation of drugs, on the methods and success of contributory schemes, down to the comparative cost of various methods of cooking and the best process of laundering, and so forth. Any hospital secretary who wants information on any of these points at the present moment has to set about it in a laborious and cumbersome fashion by writing to some other hospital of which he chances to know the secretary or a member of the committee. It seems tragic that the vast practical experience of hundreds of hospitals should not be concentrated and tabulated at some central spot where it would be easily accessible and in charge of skilled administrators. The hospital world owes a deep debt of gratitude to the late Sir NAPIER BURNETT, who made the first survey for the Red Cross of the extra-London hospitals. Dr. MENZIES brings to the same task an intimate knowledge of municipal work, and we trust that the hospitals will avail themselves to the full of his administrative ability.

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[1] The Voluntary Hospitals in Great Britain (excluding London). Fifth Annual Report for the Year 1923. Joint Red Cross Council, 19, Berkeley-street, London, W. 1*s.*

PHARMACEUTICAL EDUCATION.

THE opening of the eighty-third session of the School of Pharmacy comes as a reminder of the special place this venerable institution occupies in our educational scheme. In our time the founding of a new school is no uncommon thing, but in estimating the credit due to the founders of the School of Pharmacy we must consider the surroundings in which they lived and picture ourselves breathing the atmosphere which they breathed. In those days technical schools were unknown, and popular education was little more than a reformer's ideal. It required, therefore, both imagination and foresight to contemplate a school for specialised teaching and no small amount of courage to establish it. Thus it is seen that the founders of the school were men whose memories should be held in respect; whose proper ambitions should be handed down from one generation of students to another, as a basic tradition upon which to build from time to time other traditions equally inspiring. The founders were far-sighted pioneers; they saw, long before the leaders in many another class, that the day would come when the multiplication of the sources of knowledge would make it impossible for one man to become a universal genius or even supreme in one whole art; when specialisation would be essential to class or even personal distinction. In his address at the opening of the session, Mr. F. PILKINGTON SARGEANT, President of the Pharmaceutical Society, reminded the students that the need of such a school was one of the main reasons for the formation of the Society. It was seen by those who founded it that the most effectual method which any class of men could adopt for advancing their professional standing consisted in "a steady and persevering attention to intellectual improvement." Upon a groundwork of general knowledge, in assembling which the student learns the most important of all arts—the art of learning—they recognised that there must be erected a special structure of knowledge of those subjects which are allied to the practice of pharmacy. The Society was formed in 1841, and within a few months the school was opened and four men whose names are still familiar to students of botany, materia medica, chemistry, and pharmacy were appointed as professors. The laboratories which were equipped in the school 80 years ago were adopted as a pattern from which the Birkbeck laboratory was afterwards fitted up in University College; and the mantle of PEREIRA has fallen on a brilliant succession of teachers. It would be a lamentable thing if ever the Society, in search of economies, should make a beginning in its educational expenditure. We do not underestimate the value of organisation, but education is necessary if the organiser is to get material worthy of his scheme. As a mere trade union the Pharmaceutical Society could never have attained its present standing, which is in fact a direct consequence of its recognition of the value of education. Now, Mr. SARGEANT, quoting from the second Philippic, "Cui bono fuerit?" gave this answer from HERBERT SPENCER: "To prepare us for *complete* living is the function which education has to discharge." That, indeed, is the function of education, but when one looks at the windows and show-cases of the modern chemist's shop one is not inspired to quote either CICERO or HERBERT SPENCER. On the contrary, we believe there is a considerable section of pharmacists who ask who stands to gain and almost despair of an answer; who understand by specialisation the probing of one corner of the vast field of knowledge rather than the merchanting of toilet specialities. It is to these men that pharmacy looks for something more distinctive in the way of an outward sign of latent capabilities; in short, for a divorce of pharmacy proper from the thousand and one gew-gaws of which DIOGENES hath no need. Specialisation in production is not sufficient; there must be specialisation in practice, and we understand that a silent reformation is going on which in due time will result in two distinct kinds of practitioners, one of which will be the proper hand-maid of medicine. There can be no doubt which of the two types will be most welcome to the medical profession.

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THE PSYCHOPATHOLOGY OF ACCIDENTS.

AT the Conference of Industrial Welfare Workers, reported in THE LANCET of Oct. 4th, a discussion on the psychological and physiological aspects of accident prevention brought forward the suggestion that the state of mind of the person to whom or through whom an accident happened should be a matter for investigation. Dr. MILLAIS CULPIN, who opened the discussion, described several cases in which a pathological mental state, of the nature of a psychoneurosis, seemed to be a determining factor in the production of what had seemed to be straightforward "accidents." In these cases the people concerned were under treatment when the factors underlying the accidents—which had all happened long before—chanced to come to light. Mention was also made of a recent instance in which psychopathological factors were admittedly present and formed the subject of official investigation. On Feb. 23rd last, through the default of a signalman, a head-on collision took place near Stoke Works Junction on the London Midland and Scottish Railway between an express passenger train and a freight train. An inquiry into the accident was conducted for the Ministry of Transport by Lieut.-Colonel A. H. L. MOUNT, who paid special attention to the psychological aspects of the events which led up to it. From a report of this inquiry, which appeared in the *Manchester Guardian* of Sept. 20th, it appears that there had been handed to the signalman, when he went on duty on the night of the accident, a form charging him with insubordination and conduct unfitting him to be a signalman, and the man declared that this was the cause of the accident, inasmuch as it weighed so seriously on his mind that it had rendered him unfit for duty. Full consideration was given to this plea and the report, though deciding that the signalman could not avoid responsibility, chiefly on the ground that his deliberate decision not to ask for relief indicated an unjustifiable disregard for public safety, yet points out the error of judgment involved in handing the charge form to him when going on duty, and expresses the opinion that the human aspect of the case was overlooked in favour of the machinery of administration. Thanks to the careful and complete statement of the findings at the inquiry, the psychopathologist is able to read between the lines and at least feel that he might offer explanations of some doubtful points. The man, for example, claimed to have "mechanically" carried on his duties for an hour before the accident and to be unable to account for his actions during that period. As far as his recollection went he had been assisted by someone during that time, and for this false idea there is offered a theory of "truthful imagination" or the alternative of pure invention. To one familiar with states of dissociation it seems possible to place the incident in the category of fugue phenomena, and to that extent aid in the understanding of it. Such an explanation might make no difference in the final judgment, so far as the fixing of responsibility is concerned, but expert investigation of the most important element in the accident—the mental state of the agent—might have added greatly to the value and utility of the inquiry. A further development is invited by the description of the signalman as "a man of peculiar disposition and somewhat abnormal temperament," and by references which indicated that, like so many psychoneurotics, he was labouring under a sense of past and present injustice. It may be taken for granted that his physical fitness had been determined by careful examination, that his eyesight was adequate, that his heart and lungs were sound, and that he possessed no bodily defect that might become a source of danger in his work. But we have not yet reached the stage of making a psychological examination of a man's fitness for undertaking responsibility for the safety of other people. Indeed, we must confess that a medical man called upon to make such an examination might find very little in his professional training to help him in the task, and would have to fall back upon the nonexpert qualities of commonsense or intuition. Other difficulties come to mind, and objections to such an examination on the part of the workers might be not the least of them. One thing certain is that the case which prompted these reflections shows clearly the need for the study of the psychological aspect of accidents; if this obvious need were met the results might be expected to teach us something valuable about prevention.

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A GREAT MEDICAL EDITOR.

IN 1870 an English lad of 18, born at Moreton-in-the-Marsh, Gloucestershire, crossed to America and entered the University of Nebraska, where he won an important prize for an essay on the sheep industry. The lad was George Henry Simmons, who has just retired after 25 years' devoted service as editor of the *Journal of the American Medical Association*. On the occasion of the annual meeting of this Association in June last he was entertained to a banquet and presented with his portrait, but with characteristic diffidence he omitted to publish an account of the proceedings in the *Journal*, so that it is only now after the speeches and testimonials have been printed and privately circulated that we are able to give some account of the life and work of this great medical editor. After a brilliant career as a student at the University of Nebraska, Dr. Simmons began to study medicine and obtained a degree from a homœopathic school, after which he revisited Europe and obtained the midwifery licence at the Rotunda Hospital, Dublin. Not satisfied with this and while engaged in a busy practice he managed to obtain a supplementary degree from Rush Medical College, Chicago, and settling in Lincoln, Nebraska, he became a much-honoured member of the community. He founded the *Western Medical Review*, and in 1899 was appointed secretary of the American Medical Association and editor of its *Journal*. Although the Association had been established since 1847 and the *Journal* had been in existence since 1882 neither was in a flourishing condition, but from the moment Dr. Simmons took charge this state of affairs was changed and success attended his efforts from the first. From a circulation of 8000 the *Journal* increased the circle of its readers until now nearly 90,000 copies are printed each week, and this publication forms the chief source of income of the Association. But material success has not been the only result of the administrative abilities of George H. Simmons. The *Journal* has been conspicuous for its efforts to raise the standard of medical education in America, to cut down the number of inferior medical schools where the curriculum was inadequate to equip students as efficient practitioners of medicine, and in its campaign against quackery and all forms of medical fraud it has gained the support and admiration of the best elements of the medical profession everywhere. In connexion with this last Dr. Simmons was made the object of unprincipled attacks by the opponents of medical progress and by those whose means of livelihood had been impaired by the exposure of their frauds. The decision of the courts against the maliciously minded people who had thus attacked him was applauded by the whole community, and he has continued his efforts to teach the public what and whom to avoid both by the section on Propaganda for Reform in the *Journal*, which, week by week, deals devastatingly with some quack remedy or some patent-medicine vendor, and by the paper *Hygeia* which reaches a large lay public and endeavours to counteract the influence of the pseudo-medical columns in the less reputable newspapers. Nearly 500 of the leading members of the profession were gathered at the testimonial banquet to do honour to the man who, in the words of Dr. W. J. Mayo, has been "the greatest factor in the educational progress of the American medical profession in this generation." Prof. Harvey Cushing referred to him as an example of what America can do for an Englishman if it catches him young enough, and described him as "a man with energy, with vision and with administrative ability, willing himself to give untiring attention to details." In his reply Dr. Simmons modestly pleaded certain "extenuating circumstances," pointing out that the *Journal* had merely reflected the progress in medicine and medical organisation which had taken place during the last 25 years. At the age of 72 Dr. Simmons is now retiring from active work at his own request to enjoy the leisure which he so well deserves.

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MEDICAL CANDIDATES FOR PARLIAMENT.

NOMINATIONS of candidates for the new House of Commons will only be completed to-day, Saturday. The list of medical men who were returned to the House of Commons in December, 1923, was as follows:—

Members.	*Constituency.*	*Party.*
Sir George Berry	Scottish Universities	C.
Dr. W. A. Chapple	Dumfries	L.
Dr. F. E. Fremantle	Hertford, St. Albans	C.
Dr. L. Haden Guest	Southwark, North	Lab.
Mr. Somerville Hastings	Reading	Lab.
Sir Sydney Russell-Wells	London University	C.
Prof. T. Sinclair	Queen's University, Belfast	C.
Dr. E. G. Spero	Stoke Newington	L.
Dr. J. H. Williams	Carmarthen, Llanelly	Lab.
Lieut.-Col. T. S. Beauchamp Williams.	Lambeth, Kennington	Lab.

C., Conservative; L., Liberal; Lab., Labour.

Dr. Walter Elliot was returned for Kelvingrove, Glasgow, at a by-election during the session, and the London University seat became vacant through the death of Sir Sydney Russell-Wells on July 14th. We understand that with one possible exception all the ten sitting medical members are standing again for their party and constituency. Sir Richard Luce is standing in the Conservative interest at Derby, and Dr. Thomas Watts (C.) will fight again for the seat he lost at Manchester, Withington. Both of these, as well as Dr. Elliot, Dr. Fremantle and Dr. Spero, will receive the support of the British Medical Association. Dr. Brackenbury, we fear, is not able to stand at this election. A number of medical candidates with some previous experience of contests are again seeking the suffrage. In London, Dr. Addison is standing as Labour candidate for Hammersmith South, Dr. Alfred Salter for West Bermondsey, Dr. Ethel Bentham for East Islington, Dr. H. B. Morgan for North-West Camberwell, and Dr. Stella Churchill is contesting North Hackney. Other probable nominations are Dr. O. Gleeson (Lab.) for Portsmouth, North; Dr. J. J. Lynch (Ind. Lab.) for Walsall; Dr. I. H. MacIver (Lab.) for co. Argyll; and Dr. Laura Sandeman (C.) for Aberdeen. Although the total representation last session was not large, it was evenly distributed over the three political parties; we may hope that the numbers may be further increased by the return of other medical men and women willing to put their experience at the disposal of the legislative body at a time when it is specially needed. Polling takes place on Oct. 29th.

FACTORY AND WORKSHOP (NOTIFICATION OF DISEASES) ORDER, 1924.—Under this Order, which comes into force on Jan. 1st, 1925, the provisions of Section 73 of the Factory and Workshop Act, 1901, are to apply to all cases of (1) poisoning by carbon bisulphide, (2) poisoning by anilin and its compounds, and (3) chronic benzene poisoning occurring in a factory or workshop.

Annotations.

"Ne quid nimis."

THE SCOTTISH BOARD OF CONTROL.

THE principal facts of general interest in the latest report[1] are contained in the preliminary observations. It appears, in the first place, that there has been a moderate increase in the numbers of all types of patients under care—i.e., certified insane, voluntary boarders, and mental defectives. The Board have therefore considered, in general terms, the steps whereby additional accommodation can best be made available, and the policy which has emerged is not without interest. Against the obvious remedy of enlarging existing asylums is set this fact: "Experience has shown that large institutions, while more economically managed from an administrative point of view, are less efficient from that of the interests and welfare of the patients." When, therefore, a proposal is received for the extension of an asylum with already more than 700 inmates, the local authorities are asked to consider how far the situation can be met by any of three courses—the establishment or extension of observation wards, the boarding-out of quiet and harmless cases, and the provision of separate accommodation for mental defectives. The two former propositions are self-explanatory, but the last involves the whole policy of the Government in dealing with mental deficiency, a problem which, as indicated in last year's report, is still awaiting satisfactory and adequate solution. Mental defectives are still being sent to asylums, and it is pointed out that their condition is one totally distinct from acquired insanity, and requiring altogether different treatment. In the great majority of cases special education, which is only available in the institutions solely devoted to this work, is capable of rendering the individual fit for ordinary life under suitable private care and able to follow some useful occupation. The extent of the accommodation in such institutions will have to be greatly increased if mental deficiency is to be dealt with adequately in Scotland, and this will have the incidental effect of relieving congestion in the asylums. There is another class of patient for whom asylum treatment is perhaps unsuitable and certainly often unnecessary—the senile dement. According to this report, 20 per cent. of total admissions are cases "labouring under the mental states incidental to old age," and it is suggested that many of these might be accommodated in "cottage hospitals and homes rather than the elaborate and expensive institutions such as modern asylums are." A good deal of attention is being devoted to the provision of observation wards, which now exist at five important centres, and it is recorded that these "undoubtedly subserve the needs of many patients suffering from early unconfirmed or temporary functional nervous diseases and mental disorders." Another step in the same direction has been taken by certain parishes in Argyllshire and elsewhere, in paying for the admission of voluntary inmates to district asylums. This is so far being done only on a small scale, and part of the reluctance to institute such provision more generally is, of course, due to the fact that such patients are not taken into account in the lunacy grant, the cost of their maintenance being borne entirely by the local authority. That the Board look forward to much more elaborate and more general provision in the future for the needs of voluntary patients is evident. "In the treatment of all such cases," the report runs, "the Board have come to the conclusion that district boards, either individually or in combination, and the authorities of Royal asylums, should be empowered to establish nursing homes, hospitals, outdoor and indoor clinics, particularly by arrangement with the managers of general hospitals throughout the country, where anyone desiring advice, care, and treatment may receive it as a voluntary patient."

POLARIMETRIC ESTIMATION OF SUGAR IN URINE.

THE advent of insulin has made accurate urine-sugar estimation a necessity for everyone dealing with diabetes. Practically all the volumetric methods are difficult, and require great practice if consistent results are to be obtained. Moreover, they are unsuitable for general practice owing to the time required, the expense of solutions, and the tedium of washing up of apparatus used. In view of these facts, it is surprising that the hand polarimeter is not more extensively used by practitioners. These instruments, made by Zeiss and Reichert, and costing only a few pounds, are constructed to work with daylight, and have the length of their tube so adjusted that the scale reads off in percentages of sugar. On focusing the eye-piece, a circular field, divided diametrically, can be seen. If the tube is empty, and the scale set at zero, the whole of the field is of a uniform mauve tint. If, however, an observation tube containing diabetic urine is put into the apparatus the colours change, and the two sides of the field become uneven in tint. The scale is turned until the colours match, and the percentage of glucose can be read off directly on the scale. If the urine is very deeply coloured, 40 c.cm. should be shaken up with 10 c.cm. of 20 per cent. basic lead acetate solution (which is opalescent) and filtered. Observations are then taken on the clear fluid, but one quarter of the percentage read off must be added to allow for dilution. The only theoretical objection to this method is that lævo-rotatory substances such as β-oxybutyric acid may be present thus tending to lower the glucose rotation. This hardly comes within the sphere of practical politics, owing to the small quantities of these bodies present and to their low specific rotation index. In any case this error is preferable to those made by anyone not in constant practice who performs volumetric analysis. This method described is used as a routine in certain of our great hospitals and much valuable time is saved.

MICROSCOPIC ILLUMINATION.

Mr. Conrad Beck's treatise on the microscope,[1] written as it is by one who makes them, is calculated to be of great practical value to all who use microscopes. One chapter is frankly devoted to products of the writer's factory; the rest of the book might have issued from some purely academic source. In writing on aperture, photometry, glare, and illumination, Mr. Beck has, in places, broken new ground and his whole treatment of them is marked by unusual discernment. The accepted rule as to the relation between aperture and resolution is perhaps stated too positively. The limit of resolving power for ruled lines which has received the imprimatur of the Royal Microscopical Society is very useful to the students of Grayson rulings, but it is almost without significance in relation to such objects as bacteria which take the form of dark (or coloured) lines or dots irregularly placed on a bright field. Lord Rayleigh showed that a single dark line under these conditions would be a visible object even although its actual width should fall considerably short of the half wave-length of light. The remark applies with even more force to a small circular or approximately circular object, and it is a serious shortcoming in books upon the microscope that this problem has not received consideration. The separate visibility of regularly ruled lines is by comparison unimportant. The separate visibility of dots and lines (flagellæ) seen in a bright field is a subject the importance of which can hardly be over-estimated. It is in this connexion that the problem of illuminating the object on the stage of a microscope acquires its chief importance. When we begin to deal with objects the dimensions of which fall below the half wave-length of light

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[1] Tenth Annual Report (for 1923) of the General Board of Control for Scotland. Cmd. 2198. H.M. Stationery Office. 2s.

[1] The Microscope. Part II. A Sequel to The Microscope: a Simple Handbook. By Conrad Beck, C.B.E. London: R. and J. Dick, Ltd. 1924. Pp. 231.

limit, the problem of illumination becomes all-important, and the most serious of the microscopist's difficulties are caused by the faulty lighting which results in glare in the instrument and the flooding of the object with top light. This is a subject which Mr. Beck has taken much trouble to investigate and on which his book contains much original and valuable matter. One criticism suggests itself. Experiments are described in which the author attempts to identify the source of the top light by which dark objects in a bright field are attenuated or even obliterated if the top lighting be sufficiently overpowering. The lenses of the microscope itself are an obvious source of such top lighting and their effect was accordingly investigated, but with a curious result. Mr. Beck sums up his conclusion under this head in the words, "Reflections from the surfaces of the lenses of the microscope do not appear to be sufficient to cause much effect with transmitted light" (p. 110). Now there is one lens surface in the microscope which is, unless precautions are taken against it, a source of perfectly overwhelming top lighting on the stage—that is to say, the back face of the front lens of the objective. It is a large segment of a sphere of which the centre lies in or very near the object on the stage. If the source of light is focused at its centre this lens will re-focus it at the same point with light thrown down from its back face. In the case of a high power lens in which this segment may approximate to a hemisphere and the under face be optically abolished by immersion oil, this focused reflection easily becomes overwhelming. Thus if a small fragment of etched metal be mounted in the centre of the stage, leaving room for sufficient light to enter the lens from the bright field round its edges, it will be seen brilliantly illuminated in this way. It is for this reason that it is found impossible to see a diatom to advantage if the light source is accurately focused in the conjugate plane to the plane of the stage on which the diatom lies. This kind of faulty lighting is equally pernicious when bacteria or other dark objects are observed upon a bright field, and it is a point to which the attention of the medical practitioner, in particular, should be pointedly called. If we are disposed to find fault with the author for having missed this point, it would be necessary to add that Mr. Beck has done more than any other text-book writer to elucidate this branch of microscopic technique.

CARCINOMA OF THE STOMACH IN YOUNG PEOPLE.

IN a paper read before the Southern Medical Society Dr. Raymond P. Sullivan,[1] of New York, devotes his attention to the occurrence of carcinoma of the stomach in the first two and a half decades of life, of which he has collected 21 examples, as well as a case which recently came under his own observation. Although no age is immune, gastric carcinoma is extremely rare during the first decade, only six out of 7000 cases of carcinoma of the stomach analysed by Osler and McCrae being of this age. Four of these were in children under 6 weeks, one was in an infant of 18 months, and one was in a boy of 8 years. During the second decade gastric cancer is also rare, only 13 such cases being found in the series of Osler and McCrae. In the third decade the condition is more common and probably occurs to the extent of 3–4 per cent. Among 50 cases of gastro-intestinal cancer in youthful persons collected by Bernouilli in 1907, the stomach was the seat of the tumour in 13, in 5 of which the pylorus was the part affected. In 3 cases the cancer was supposed to have originated from ulcer of the stomach. Five of the 13 cases were colloid cancers, three scirrhous cancers, one adenocarcinoma, one medullary solid carcinoma, one a mixed type, and in one no statement as to its nature was made. Juvenile gastric carcinoma is characterised by sudden onset, rapid course with persistent high temperature, absence of cachexia, and early metastases. The absence of cachexia is explained by the rapid course, so that the digestive disturbances lead to loss of weight without having time to produce marked wasting. The high temperature is referable to disintegration and breaking down of carcinomatous tissue, the fever beginning at a relatively early stage and persisting until death. Among the important diagnostic aids in these cases other than X rays is the proper use of gastric catheterisation. Operative treatment is indicated in all cases in which removal of the tumour and its immediate metastases seems possible as well as in cases in which the growth has produced stricture of the cardiac or pyloric orifices. Non-operative methods such as irradiation with X rays or radium have not yielded encouraging results. Partial gastrectomy when possible is the operation of choice. Gastro-enterostomy is indicated when radical surgery is no longer possible or in existing or incipient pyloric stenosis in inoperable cases. Dr. Sullivan's case was that of a man aged 22, who had suffered from epigastric pain for four months with loss of flesh, strength, and weight. A provisional diagnosis was made of ulcer of the posterior gastric wall, but on laparotomy the posterior gastric wall was found to be fixed to the pancreas by an irregular growth occupying the pars pylorica and pars media. A partial gastrectomy of a modified Billroth II. type was performed. When seen eight months after the operation the patient was in good condition, no sign of recurrence was found, and the X rays showed evidence of good gastric function and motility.

HOOKWORM SURVEY IN SIAM.

BETWEEN June, 1921, and April, 1923, an extensive survey was carried out in Siam to determine the extent and severity of hookworm disease and other intestinal parasitic infection throughout the kingdom as general data required in the development of a comprehensive programme to control the infection were lacking. The work was done under the auspices of the health section of the Siamese Red Cross Society, of which H.S.H. Prince Vallabhakara is director, in coöperation with the International Health Board of the Rockefeller Foundation, of which Dr. M. E. Barnes is director for Siam, assisted by Dr. H. R. O'Brien. Attention was also paid to the collection of other health data, the stimulation of improvement in sanitary conditions, and the conduct of a general health educational campaign. The final report of the survey has recently been issued.[1] Six survey units were engaged in the work, each consisting of a medical officer and four assistants suitably equipped. Lectures and demonstrations in schools and public buildings were given in order to conduct effective health educational propaganda. Siam is divided into 74 districts (or changwats), in 44 of which investigations were conducted. The kingdom can be divided geographically into four regions. The most important is the great river valley of the Me Ping, whose headwaters rise in the mountain ranges of the north; in the south it narrows out into the neck of the Malay Peninsula. Most of the inhabited area is only a short distance above sea-level and supports a population of nine millions. There is only one large city; the great bulk of the people live in villages of 100–800 residents each. Rice is the universal crop. The prevalence of hookworm varies very markedly in different parts of the country. There are three main centres of infection lying in the far north, the east, and the far south. In the southern districts the incidence of infection is found to vary with the distance from the sea. The infection-rate in Bangkok proper is 8·3, while in Chiengmai in the north it is 81·5 per cent. A complete explanation for these variations in infection-rate awaits further investigation. In this survey campaign 243,930 persons were examined, of whom 7·35 per cent. were found infected. A remarkable uniformity exists throughout the country in the distribution of the various age-groups; the rate rises steadily from infancy and reaches its peak during the period 40–60. Females are only slightly less heavily infected than are males of the same ages. As regards race susceptibility, the Chinese have practically the same infection-rate as their Siamese neighbours; the Indians maintain a slightly higher rate. Of the total population examined no less than 75·8 per cent. are infected with some intestinal parasite, and next to the hookworm, *Ascaris lumbricoides* is the most important. Very considerable attention is being given by the survey units to the question of health propaganda designed to create popular interest in public health matters.

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[1] Surgery, Gynecology, and Obstetrics, September, 1924.

[1] Final Report on Hookworm Survey and Health Propaganda Work in the Kingdom of Siam. Health Section, Siamese Red Cross Society.

DR. KERR'S RETIREMENT.

At the County Hall on Oct. 1st Dr. James Kerr was entertained by a large number of his colleagues past and present, and Sir William Hamer handed to him a memento of the high appreciation in which he has been held as research medical officer to the London County Council. Dr. Kerr entered the service of the London School Board as medical officer in 1902. Before that he was in practice in Bradford, where as honorary surgeon to the Bradford Royal Eye and Ear Hospital and medical superintendent to the Bradford School Board he conducted an active exploration of the possibilities of school hygiene, a field hitherto untouched, using unorthodox but scientific methods of investigation into such questions as vision-testing, estimation of mental ability, and infectious disease. His work in this direction was recognised by the award of the Howard Medal of the Royal Statistical Society for an essay which contained the first reference to congenital aphasia in cases of word-blindness and word-deafness among school-children. On this early work of Dr. Kerr's has been erected the vast structure of the school medical service as it stands to-day. He was also an active member of the Departmental Committee on Physical Training, and took a prominent part in organising the International Congress on School Hygiene, which was held in London in 1907. During the war Dr. Kerr founded and, until he left the service, directed the London Psychological Clinic for treating patients suffering from shell-shock by re-educative methods. He has been for many years a member of the Council of the Illuminating Engineering Society, and was one of the English representatives appointed to the recent International Conference on Standards of Illumination. All which goes to show that in retiring from the routine of office work Dr. Kerr does not intend to lead a life of leisure. We may hope that he will embody his unrivalled knowledge of the principles of school hygiene in some permanent form. We understand that he has not quite severed his connexion with the London County Council, which will still be able to avail itself of his services in a consultative capacity.

PREVENTION OF HEART DISEASE IN NEW YORK.

An account of pioneer work carried on in New York was given recently at a post-graduate medical course in Dayton, Ohio, by Dr. Haven Emerson, president of the Association for the Prevention and Relief of Heart Disease.[1] Dr. Emerson compared the present situation with regard to heart disease to the position which tuberculosis held a few years ago. Organic heart disease is at the present time the first of the killing diseases in America. It is not at present thought of as "curable, preventable, and communicable," yet there are grounds for supposing that to a certain degree all three of these adjectives are applicable. A large proportion of cases result from the rheumatic group of infections, while syphilis is responsible for a growing proportion of the organic lesions arising after the age of 30. Forty-eight heart clinics have been established in the city of New York, cases being referred to them by the general hospitals and dispensaries. Dr. Emerson mentioned that in one children's hospital the amount of "bed time" devoted to cardiac cases had been reduced from 30 per cent. to a mere 6 per cent. by the opening of these special clinics. While the general hospitals are relieved, the patients have the advantage of after-care very much like that given to the tuberculous, and a certain amount of vocational guidance. Two trade schools for teaching appropriate crafts to children with heart disease have been opened in New York. A suggested list of suitable trades for skilled and semi-skilled workers of either sex is published by the Association amongst their educational literature. The Association has also been successful in persuading convalescent homes and summer camps to open their doors to heart cases. These institutions no longer fear the possible complications of a sudden death when the heart cases sent to them have been certified by a specialist in the heart clinic as suitable for their particular variety of institutional treatment.

THE CANCER CAMPAIGN IN NORWAY.

In the October number of the *World's Health*—the review published by the League of Red Cross Societies in Paris—an account is given of the cancer campaign in Norway by Dr. F. G. Gade, who is the secretary to the Norwegian Committee for Cancer Research, and who is well known in Norway as the greatest driving force in this campaign. As he points out, the isolated and stationary character of the population in the country districts has been exploited by the Cancer Committee which has induced many doctors in settled country communities not merely to notify cancer deaths, but also to undertake a study of such subjects as heredity, which require a stationary population. It is interesting to note that cancer of the uterus is very rare in the isolated country districts, and that of all the notified cases of cancer of the lip 97 per cent. involved the lower lip, and as great a proportion as 88 per cent. of all these patients were males. Nearly all these cases came from distant valleys among the mountains, or from forest or coast districts where the clay pipe is still much smoked. It is only since 1919 that the Cancer Committee has succeeded in getting all medical officers of health to give a special yearly report on deaths from cancer in their districts, the scheme of this report being framed by the Committee with 30 different localisations, more or less on the lines of British cancer statistics. From 2700 to 3000 deaths from cancer occur in Norway every year. Cancer, which is responsible for 7 per cent. of all the deaths, ranks after tuberculosis and old age as the most common single cause of death. There are 10·9 deaths from cancer for every 10,000 living persons in Norway. The disease is equally distributed between the sexes, for while 51·8 per cent. of the patients are women, it should be noted that 51·3 per cent. of the total population is female. From 51 to 52 per cent. of all the cases of cancer affect the stomach, and 66 per cent. are found somewhere in the digestive tract. Cancer of the uterus, ovaries, and breast accounts for 12 per cent. of all the deaths. It is doubtful if the growing number of notifications means that the frequency of the disease is increasing, for such factors as improved methods of diagnosis and the greater average longevity of the population may give an erroneous impression in this respect. To facilitate early diagnosis, arrangements have been made at the pathological institutes in Christiania and Bergen for free microscopic examinations of material removed at operation or after death. Several thousand such examinations have been made. A large modern cancer hospital is soon to be built near Christiania, and already two and a half million kroner have been collected for it. It is to be equipped with all the modern means for diagnosis and treatment, and is intended mainly for poor patients suffering from inoperable disease. The Cancer Committee also conducts propaganda for the early diagnosis of the disease.

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[1] Executive Secretary, Miss M. L. Woughter, 370, Seventh Avenue, New York.

TYPHUS AND *TYPHUS*.

THE Weekly Return of Infectious Diseases, issued by the Registrar-General for the week ended Oct. 4th, contains an announcement of one case returned as typhus fever, and a cross reference shows that the notification came from the metropolitan borough of Bethnal Green. Dr. G. E. Oates, medical officer of health for the borough, informs us that this case was not one of typhus at all, but was notified from the German Hospital as *typhus abdominalis*, which is the German term for typhoid fever. We are not concerned to inquire particularly how the misunderstanding developed into a slightly alarming entry in the Weekly Return. It may, however, be well at a time when international thought for infectious diseases is overstepping national and political boundaries to make sure of a nomenclature which is generally understood. It is now long since with the aid of Jenner and Murchison a group of dangerous febrile illnesses of long duration was finally split up into typhus and typhoid, and it was, no doubt, wise to introduce names of markedly distinct tone. The word *typhus*, however, continued to do service in the German-speaking countries for the whole group, a qualifying adjective being added: *abdominalis* corresponds to our typhoid; *exanthematicus* to typhus fever; *recurrens* to relapsing fever. It would probably be a safeguard for us also to qualify the term typhus with the adjective exanthematic and so, as we become more polyglot, avoid a source of confusion which has here shown itself in high places. It is the less to be regretted that the Nomenclature of Diseases issued by the Royal College of Physicians of London in its latest edition dropped the foreign equivalents, since its place may be filled by the International List of Causes of Death, revised at a Paris conference in 1920.

THE CLINICAL THERMOMETER AS NOXA.

THERE is a pleasant theory, largely justified by practice, that the doctor lives a charmed life and, as he goes about his daily work, does not become infected himself with the many infective agents with which he comes in contact, nor does he carry these with him home or to other patients. This professional immunity seems also to include that faithful instrument of general practice, the clinical thermometer. We know of no exact inquiry into the usual habit of the practitioner, but no doubt a large proportion simply cleanse the bulb of the thermometer with water or soap-and-water before replacing it in the case. In THE LANCET of August 23rd (p. 406) Major H. C. Brown, I.M.S., demonstrated that this method of cleansing the clinical thermometer is ineffective in the case of intentional contamination with a laboratory germ, and he documented his statement with abundant cultures of the bacillus from clinical thermometers which had been washed in water and wiped with a clean cloth. This is the bacteriologist's challenge. Now, there is every reason that the clinical thermometer should be freely used on all possible occasions, and that no unnecessary formality should stand in the way of such use; experience of general practice is in the final issue the best criterion of how to use it. The practitioner who has to adapt clinical means to clinical ends need only observe the aseptic code in so far as it is of proved necessity. The mouth is evidently provided with efficient measures, whether natural or acquired, to prevent infection of modest intensity. Otherwise what infant would escape whose comforter is replaced in its mouth or what adult who consumes ripe cheese? Nevertheless, more attention should be paid to the avoidance of conveying living germs by the clinical thermometer. Instrument makers have already made it small and convenient for us in a way unfamiliar to the Continent, where a thermometer is often the size of a long cigar; the reservoir has been arranged so that the thermometer reads quickly and the mercury shakes down easily; it is apparently too much to ask for a glass thermometer which can be dipped in boiling water without bursting. The Immisch thermometer, which consists essentially of metal, is as yet a pleasant scientific toy. It is true that manufacturers have of recent years made glass which can be heated red hot and dipped in cold water without breaking, but so long as the constricted neck remains an essential part of the mechanism of the clinical thermometer, any sudden application of heat must continue to burst the bulb. We are driven, therefore, to fall back on the more prolonged action of antiseptics. Antiseptic thermometer cases without number have been devised. One was described in our columns more than 20 years ago, in which the case could be filled two-thirds with strong carbolic solution. Other instruments provide an absorbent lining which can be moistened with antiseptic lotion; the evolution of formaldehyde vapour within the case has also been effected. There are a number of simple devices now on the market, and the St. Dunstan's case,[1] to which we have already called attention, is highly ingenious in conception and quite satisfactory in practice. The practitioner might in many cases, as a correspondent has reminded us, put the onus of providing a clean thermometer on the patient, remembering that a family is much less susceptible to its own bacterial flora. But Major Brown's warning is a word in season.

THE Final Report of the Departmental Committee on the use of Preservatives and Colouring Matters in Food is being printed and will shortly be issued from H.M. Stationery Office. The terms of reference to the Committee have been extended to include the question of the treatment of flour with chemical substances, and the Committee will now proceed to inquire into this question.

A MEETING is being arranged by the Royal Society of Medicine at 1, Wimpole-street, London, W., on Nov. 6th, at 8 P.M., between the Section of Obstetrics and Gynæcology and the Section of Epidemiology and State Medicine and the Society of Medical Officers of Health, to discuss the notification of puerperal sepsis. Those engaged in general practice, who are not members of the Sections and Society mentioned, will be welcomed as visitors and are invited to take part in the discussion, as it is thought to be very desirable that the views of the general practitioner should be put forward as well as those of the obstetrician and medical officers of health.

AT the second session of the Royal Commission on Lunacy the Board of Control was again under examination. Sir Frederick Willis informed the Commission that of the 5525 patients sent out on trial during a recent year a large proportion had to return again to institutional care. The insufficiency of accommodation for mental cases would, he said, in a short time become serious. The Chairman of the Commission remarked that workhouses were not proper places for the reception of patients likely to improve under treatment, a point on which the Board of Control would welcome discussion. In answer to a representative of the National Society for Lunacy Reform, Sir Frederick Willis said that not more than six cases a year of cruelty to patients occurred in which dismissal or other disciplinary action was taken instead of prosecution, and all allegations of cruelty were followed up. The present machinery of certification and detention, he thought, adequately safeguarded the liberty of the subject. Sir George Schuster described the legal position of the Lord Chancellor in lunacy matters. The next meetings of the Commission will be held at 5, Old Palace Yard on Oct. 21st and 22nd, beginning at 10.30 A.M. each day, when evidence will be taken from the Ministry of Health.

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[1] Issued by St. Dunstan's (registered under Blind Persons' Act, 1920), who receive half the inventor's royalty on all cases sold. Manufactured and distributed by J. J. Hicks, 8, Hatton-garden, London, E.C.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCII.—THE TREATMENT OF HÆMORRHAGE IN THE NEW-BORN INFANT.

THE two main types of hæmorrhage which may be seen in the new-born—true birth hæmorrhage and spontaneous hæmorrhage—are as distinct in their treatment as in their ætiology. Like most affections peculiar to the early days of life these conditions have not received the attention which is their due, considering their frequency and the high death-rate which is associated with them. Without entering into details as to the somewhat obscure ætiology of certain varieties of hæmorrhage, one may mention, as a basis for rational treatment, the forms in which the bleeding may occur in the new-born infant, and their probable origin.

Birth Hæmorrhage.

True birth hæmorrhage is by far the commonest type of bleeding in the new-born. It is now becoming recognised that the underlying cause is the congestion resulting from asphyxia during parturition. In all infants born with asphyxia livida this congestion is well marked, and in the majority some form of hæmorrhage is present. It may be only petechial or capillary, but it may be of a grosser character. Such congestion, with or without hæmorrhage, is often fatal. The treatment is largely prophylactic and consists in the prevention of undue asphyxiation of the fœtus by keeping the duration of labour within reasonable limits. A child which is born deeply asphyxiated, with its heart engorged with blood and all its veins and capillaries congested, can hardly fail to benefit from the withdrawal of some blood from the circulation. Hence good results may be obtained by allowing a few c.cm. of blood to escape from the cut end of the cord. Care should be taken to avoid violent manipulations which might lead to traumatic rupture of vessels in an asphyxiated and congested infant.

Traumatic hæmorrhage may occur either during labour or after delivery. Intracranial hæmorrhage from tearing of dural structures, such as the tentorium cerebelli, is of frequent occurrence, and is so often associated with a breech delivery that the correction of this malpresentation would appear to be the obvious method of lessening the incidence. Difficult forceps deliveries are also responsible for some cases of this form of hæmorrhage, but in others it is difficult to indicate any measure which might have been employed to prevent the occurrence. Gross hæmorrhage may occur into the body cavities from traumatic rupture of deeply congested organs. The best example of this is rupture of the liver—or rather of the liver capsule—which is not infrequently attributable to the use of violent efforts to establish respiration. The Schultze method of artificial respiration is particularly apt to lead to this type of hæmorrhage. When gross hæmorrhage has given rise to increase in intracranial pressure much benefit may be derived from lumbar puncture, repeated from time to time as required. On account of the practical impossibility of localising the lesion with accuracy, surgical procedures are not advisable, though attempts have been made to deal with intracranial hæmorrhage in this way. Hæmorrhage into internal organs is also unsuitable for surgical treatment in the absence of localising signs.

Spontaneous Hæmorrhage.

The terms spontaneous or idiopathic hæmorrhage have been used to describe a variety of conditions found in the new-born, all of which have bleeding as their most striking feature. They are not to be confused with the forms of hæmorrhage referred to above. In any case where doubt exists an estimation of the coagulation time and of the bleeding time will settle the matter, for in spontaneous hæmorrhage these are both definitely prolonged. Some cases of spontaneous hæmorrhage are associated with sepsis, others occur in congenital syphilis, while others again are of such obscure ætiology as to justify the retention of the term *idiopathic* in describing them. Rare forms exist such as Winckel's epidemic hæmoglobinuria, and it is held by some authorities that even true hæmophilia may lead to hæmorrhage in the new-born. The commonest manifestation of all these conditions is bleeding from the alimentary tract—melæna neonatorum and hæmatemesis. Bleeding also occurs into the skin, into the brain, into the abdominal and thoracic viscera, and from the umbilical stump. The chief loss of blood, however, is from the gastro-intestinal tract, and the amount lost is so great as to reduce the child to a state of extreme anæmia which soon proves fatal if the hæmorrhage is not checked.

In the treatment of such infants we have now a remedy which is practically specific. It consists in the subcutaneous or intravenous injection of *whole blood.* This leads to arrest of the hæmorrhage, and, if it has been applied in time, recovery is probable. The use of serum has been recommended by some writers, but the results appear to be much inferior to those obtained from the injection of whole blood. In all cases where it is suspected that the "hæmorrhagic diathesis" exists the coagulation time and the bleeding time should be estimated.

To test the *coagulation time* all that is required is a sharp Hagedorn needle, a pair of watch-glasses, and a small lead shot. These should be carefully cleaned with soap and water followed by ether. A drop of blood is allowed to fall from a needle puncture in the heel into one watch-glass containing the shot, and the second watch-glass is inserted over it to prevent evaporation. Every half minute the glasses are tilted so as to allow the shot to roll. The point at which it ceases to do so is taken to indicate the time of coagulation. Tested by this method the normal coagulation time in the new-born ranges between five and ten minutes. In cases of hæmorrhagic disease the period may be prolonged to half an hour or more.

In the normal child the *bleeding time* ranges between two and five minutes. It is tested simply by pricking the skin of the heel and removing the drops of blood with filter paper as they appear. If they continue to do so for more than five minutes there is an increase in the bleeding time. In many cases of hæmorrhagic disease the puncture goes on oozing for hours or even days.

Injection of Whole Blood.

As soon as the diagnosis is confirmed in this way preparations should be made for the injection of blood.

Subcutaneous Injection.—The simplest method of doing this is with an ordinary serum syringe of about 20 c.cm. capacity. The syringe is sterilised and fitted with a fairly wide-bore needle such as is ordinarily used for intravenous therapy. The arm of the donor is constricted with a tourniquet, the skin is cleansed, and the needle of the syringe inserted in a vein. From 10 to 20 c.cm. of blood are taken into the syringe and the instrument is withdrawn after removal of the tourniquet. Without delay the needle is inserted through the sterilised skin of the infant in the mid-scapular line. The needle should point outwards towards the axilla. The blood is then injected deeply into the subcutaneous tissues. When the needle is withdrawn the puncture is sealed with collodion and the surrounding area is gently massaged for a minute or two. The results of this treatment—provided it is applied early enough—are very satisfactory, and the ease with which the operation can be performed makes it a method of real use to the practitioner.

Intravenous Transfusion.—It is claimed that even better results are obtained, however, by the intravenous transfusion of blood. For this purpose either a large serum syringe or one of the more elaborate forms of transfusion apparatus may be employed. If a syringe is used it should be one of 20 c.cm. capacity, and should contain 2 c.cm. of a 10 per cent. solution of sodium citrate. A cannula with a short rubber tube attached is inserted into the donor's vein and clamped. A similar tube and clamp are attached to the needle inserted into the infant's vein, so that as many syringefuls of citrated blood may be given as the child may be thought to require. A severely exsanguinated infant can take as much as 15 c.cm. of blood per pound of body-weight (L. B. Robertson). With regard to the route chosen for intravenous injection in the new-born infant, it may be noted that the superior longitudinal sinus is the most satisfactory one. For anyone who is in the habit of performing venipuncture it is a simple matter to enter this sinus through the anterior fontanelle. The child, wrapped firmly in a blanket, is placed on a table on its back, the needle is held at an angle of about 25° with the skin, and is inserted at the occipital angle of the fontanelle with its butt towards the frontal region. Another method is to use one of the veins of the scalp which are so prominent in young infants. Unfortunately they are less easily punctured when the child is exsanguinated. If this route is chosen the child is held firmly on the side with its head resting on a sandbag or hard pillow. Pressure with the thumb on the temporal region will bring the veins into prominence, and the needle can be inserted almost parallel to the skin with its butt pointing towards the crown of the head. The arm veins are not suitable for intravenous injection in the infant, but the internal saphenous vein and even the external jugular vein have been used with success.

Precautions in Selecting a Donor.—A word may be said with regard to the choice of a donor. Ideally the blood of the donor should be tested to ensure that the Wassermann reaction is negative, and the blood of both the donor and of the infant should be "grouped." If there is no opportunity for testing the compatibility of the donor's blood, the safest procedure appears to be the injection of the mother's blood subcutaneously, as described above. A very simple method of carrying out the compatibility test is, however, available. A few drops of the infant's blood are allowed to clot in a capillary tube or Wright's capsule. The serum is then separated from it by swinging in a centrifuge. A *large* drop of the serum is transferred to a slide by means of a capillary pipette wet with citrate solution. To it is added a *small* drop of the donor's blood and a cover-slip is put on. If no agglutination of the corpuscles is seen under the microscope at the end of five minutes the bloods may be regarded as practically certain to be compatible.

In addition to the specific treatment described, every care must be taken to conserve the infant's strength by warmth and feeding. If possible, a quantity of fluid (either water or normal saline) should be given by the mouth. This is readily absorbed, and helps to restore the blood volume.

J. N. CRUICKSHANK, M.D., F.R.F.P.S. Glasg.,
Physician to Out-patients, Royal Infirmary; Pathologist, Royal Maternity and Women's Hospital, Glasgow.

THE LATE DR. W. M. EATON, OF BULAWAYO.—Walter Musgrave Eaton, M.B., C.M. Edin., D.P.H. Camb., Assistant Medical Director of South Rhodesia, and medical superintendent of the Bulawayo Memorial Hospital, died with tragic suddenness there early on Saturday morning, Sept. 13th. He was taken ill while motoring on the previous day, and was brought into Bulawayo. Born in Cape Province, Dr. Eaton was 60 years of age, and had earned a high professional reputation in Rhodesia, where he had practised for many years. Dr. Eaton is survived by his widow and three sons.

Address to Medical Students.

INDIVIDUALITY IN MEDICINE.

An Address delivered to the Students of Durham University Medical College at the Opening of the Winter Session, Oct. 6th, 1924,

BY SIR THOMAS HORDER, BART., M.D., F.R.C.P.,
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

I THINK it highly probable that all that is worth saying upon an occasion like this has already been said. And I have refrained from reading any such addresses as I am now giving because I know so well from experience that if I read what others have said in similar circumstances, I get so discouraged that I am even more conscious than I otherwise should be of my own incapacity. So what I shall say to you to-day has at least the merit of being my own thoughts, and it would, after all, be a sad commentary upon my use of the opportunities afforded by medicine if 30 years of teaching and practice found me barren of any reflections that are worth telling to an audience like this. I feel that the chief risk I run is regaling you with a string of platitudes—saying things with a solemnity of utterance that are really distinguished by nothing save extreme tenuity of thought. If I warn both you and myself of this possible disaster I may at least avoid the extreme degree of it.

Let me consider, first of all, what it is that you have chosen as your profession. In the Middle Ages the schoolmen did not regard medicine as one of the "liberal arts and sciences." That was probably because in their day medicine was no longer an art, and still less a science. I say "no longer" because it is clear both from literature and from archæology that medicine was a very well-developed art a thousand years before the time of which I speak. But in Chaucer's day it had ebbed so low that it had become something less even than a craft. It was artful, but devoid of art. Nor did it become an art again until science had its renaissance. Then, with the re-birth of anatomy, physiology, physics, and chemistry, medicine became both a science and an art. It has continued to be so. I should perhaps scarcely be challenged if I said that it has become the most liberal of all the arts and sciences, that is, the most worthy the pursuit of a free man.

I have wondered what it was that enabled medicine to survive during that long period when its art was forgotten and its science was not born. I can only think that it was the person of the doctor that kept medicine alive; that the men who set themselves apart to alleviate human ills supplied in place of the knowledge they lacked and the art they had no chance of studying an individuality that appealed to their distressed patients and somehow served a useful purpose. They were certainly men of learning, most of them, and close contact with their fellows in all manner of experiences probably brought them a wisdom which was rather above the average. It was, no doubt, that sort of wisdom which we term judgment and which, if we have it not in medicine, though we "know all mysteries and all knowledge," we are nothing. They would learn patience, too, these men, and courage, and understanding, and, most of all, they would get to love their fellow men.

PERSONALITY OF THE DOCTOR.

Although the idea has gone a little out of fashion, I think this same element of personality is still essential in the doctor if he is to achieve the purpose for which he stands. I do not mean merely that he shall possess certain natural characteristics which are pleasing and acceptable to the ill person, though these, too, are of service and are by no means to be disregarded. A good presence lends a credence to a hopeful prognosis, and a cheerful countenance sometimes saves a patient from despair. I was once leaving the sick-room of a powerful young international footballer who was ill with pneumonia. All the signs were in his favour, and I had no anxiety about the issue. Imagine, therefore, my dismay when he called me back to his bedside and asked me in a hoarse whisper, "Is there a fighting chance, doctor?" His terror was due, not to his own condition, but to the doleful face of his medical attendant. Patients choose their doctors for all sorts of reasons, and none of us can afford to scorn Nature's gifts on the physical plane. "Tell me, Mrs. Smith," I once asked, rather reflectively, a lady who was giving me some breakfast after a very strenuous night spent with the family doctor in keeping her husband alive, "tell me, what led you to choose Dr. Jones for your new medical adviser?" They were old friends of mine, and they had gone to live in a new district. "Oh," said Mrs. Smith, "you remember, Sir Thomas, we are musical, and Dr. Jones has such a fine tenor voice."

Then there are in some doctors natural tricks of manner that attract. Some doctors manufacture mannerisms; they are not such good assets as the natural ones, and I do not recommend them. And yet they sometimes succeed. Since Abernethy's time one occasionally sees a medical man adopt a brusqueness of behaviour which tells with certain patients. Speaking of his wife's doctor to me one day a friend said, "My wife trembles when she hears his foot on the stairs," and learning this I understood, for the first time, her great confidence in him.

But when I speak of the personality of the doctor, I mean more than all these things. I mean the personality which is the outcome of a concentrated and developed individuality. Every man's individuality is a new factor in the universe, a contribution to life and, in the case of the doctor, a contribution to healing. This individuality, which you decide to devote to the high purpose of medicine, is the thread upon which you string the beads of observation, of experience, of patient work, and of sound training. These things by themselves, valuable though they are, do not fit you to be a good doctor; but when they are transmuted through you, when they are dissolved in the general solution of your life, they crystallise out as an influence which brings health to the sick and comfort to the unhappy. I do not think I can get nearer to my meaning than that. This ideal is a high one, making the doctor a priest as well as a physician, and yet it is not higher than the ideal laid down for our profession by the Hippocratic school two thousand years ago: "With purity and with holiness I will pass my life and practise my art." Doubtless you remember these words in the immortal oath.

Worldly Success.

There may be some who are thinking: These highfalutin' considerations are all very well, but the question really is, can one make a success of the thing, worldly success, that is—because a man must live—will the thing pay? Well, I think I can promise you that you can always earn a modest competence at it, a minimum wage—yes, even accepting the present-day notion of a minimum wage—enough money, that is, to keep you free from anxious care, always assuming your needs are few and your tastes simple. I do not think I have ever seen a qualified medical man in pecuniary straits except as the result of ill-behaviour, or foolish speculation. But I am not going to promise you more than this, because whether you become rich or not will depend upon quite adventitious things. For example, some of you may possess business acumen. If you do, you will probably make medicine pay, just as you would make any other calling in life pay. Then again you may find yourself in charge of a very large panel practice. Or you may become an eminent surgeon, being endowed with hands of such singular dexterity that it seems a pity not to use them very frequently. You will most likely earn quite a large income. If, in addition, you are gifted with that valuable asset termed "a good address," you certainly will, for few whose complaints are amenable to surgical methods—and whose are not?—will long escape your siren influence. Then once more, you may be attracted to some new vogue in medicine, something that so tickles the public fancy that, leaving all other doctors, they flock to you to be healed. You will thrive. But in this last instance you must make haste to exploit the new remedy whilst it is still new; and it may be just as well to study the next "stunt" in advance during the few spare moments that a busy practice gives you, so as to be ready for a quick change as soon as the fashion alters. But Durham graduates will not be found in this last category. I can, as I say, promise you that well within the limits of conduct that an honourable man imposes upon himself you will be able to discharge all the pecuniary obligations of citizenship by the practice of your art. As for riches, my friends, if you are attracted by them you have chosen your vocation very foolishly. Sydenham, the father of English medicine, summed up the situation admirably when he said, "But if any think that riches, got by such a reputation, has in it somewhat more of solidity, let them enjoy what they have scraped together with all my heart, but let them remember that many mechanics of the most sordid trades get and leave more to their children." And one might add in these days that if you want to grow rich by dabbling with medicine, you will not get qualified at all. You will, of course, be careful to keep to the windward of the law, and your friends and patrons will think you are ostracised by the profession, and prevented from entering the ranks of the regular practitioners by sheer jealousy. It will all be a gorgeous advertisement. Politicians and dignitaries of the Church and county squires will demand that you be given a diploma or an honorary degree—which is, of course, the last thing that you want. You will engage in bloodless surgery (beneficent sound!), or cheiropractic or the laying on of hands. And you will flourish as the green bay-tree.

It may be that some of you are still wondering if you have chosen well in taking medicine for your vocation. If so, I sympathise with you most heartily. I still wonder myself at times, and it is one of the grievances I have never ceased to allow myself, that there never seemed a good opportunity between my preliminary science studies and embarking upon the subjects of the first M.B., nor again when the time came to change those for the medical and surgical wards, when I could go apart, as it were, and thresh out thoroughly the question of my fitness for medicine. For I was brought up to believe that medicine required special gifts and a definite leaning towards it on the part of the disciple. But for your peace of mind I advise you to leave all this heart-searching alone. From all I see of good and bad doctors—though heaven forgive me if I ever claim to be a judge—I am led to believe that the die is cast long before the decision to study medicine is taken. Perhaps it is cast no less certainly for all avocations in life. I do not suppose for a moment that the poet is the only creature who is born and not made. I am sure I have quite a number of friends amongst laymen who would make excellent doctors, and I occasionally meet a medical colleague who makes me wonder a little if some other branch of human activity than ours has not lost a leading light. I do not think it is possible for even the best observer of character, or rather of temperament, in the boy or girl, to be certain of these things beforehand—no, not even the boy's or girl's own mother!

A Field for Free Activity.

Whether you are going to function well or indifferently as a doctor, there is no doubt, as I said just now, that medicine affords a very good field for the activities of a free man, and this whatever his bent turns out to be. Does he desire large commerce with his fellows? Medicine gives him this in full measure.

Is he attracted by the operation of law in the scheme of nature? He will find ample scope for the study of it here. Does he love beauty, in form or in design? This also is here. Does he crave for sport? In medicine he can track down his game, no less exciting because it is very small rather than very big. Does he delight in stratagem and tactics? Here he can decide how the enemy is to be defeated, where to mobilise and combine his forces. Medicine provides a life alike for the scholar, the recluse, the man of action. Some of you will branch off into physiology, some into biochemistry; some will probably settle down in the bacteriological laboratory as a permanent pursuit; some will marshal an army of preventive measures against epidemic disease. Work in all these fields is of vast interest to the worker and of enormous importance to medicine. I am not, however, concerning myself so much to-day with those of you who will take up these special branches as with the main body, who will leave their alma mater and go amongst men and women to heal them of their diseases. To return, then, to this question of good doctors. Of course, you know already that the ease or the difficulty you experience in passing your examinations is no guide to your future success. So you need get neither cheered nor disheartened on that account. We are all familiar with the man or woman who scores heavily with an examination paper, yet can scarcely say boo to a goose in the sick-room. But I remember the man I coached for the longest time when I was a demonstrator. I coached him so long that I feared for my reputation, and declined to coach him any more. Then I yielded to his father's solicitations, and coached him again, a little fascinated, I think, by the peculiar difficulty of the case. Twelve years this particular "chronic's" curriculum lasted, but at length the Society of Apothecaries received him into its Hall. My pupil turned out to be a most excellent doctor and a very successful one. When I saw him a few years after he left hospital, he had an assistant and a very thriving practice. Nor do I attribute his success to his having married the undertaker's daughter in the town where he set up his plate. I attribute it rather to a considerable knowledge of the world, an unvariable courtesy, a cheerful manner, a gentle voice, and a resourceful mind. In the hospital wards I have seen him talking familiarly with the old folk, and little children, when he approached them, would drop their dolls to smile at him.

So do not think too seriously about those examinations. I know what a nightmare they can be, and how many of the best opportunities of your student days are irretrievably lost on account of them. I wish we could do without them altogether; but they seem to be a necessary evil. You must do all you can to banish the paralysing fear that they create in the mind. Try and believe that, more and more, the examiner concerns himself to see that your methods are good, rather than that your diagnosis is correct. He knows from long experience that, given good methods, all else is bound to follow. So I would say to you who are beginners: Watch your teachers' methods; what they *do* is more important even than what they *say*. Note how they approach the case and how they handle the patient's mind as well as his body. Note also that it is always with them eyes first and much, hands last and little. See how thoughtfully and how patiently the history of the patient's complaint is taken. A good history takes the experienced observer a long way on the road to a diagnosis. Be accurate with your facts; avoid loose terms of speech: "nearly" and "about" and "I think" are the stigmata of a lazy mind. Don't say the temperature is very high, or the pulse rather slow; say the temperature is 105·2° and the pulse is 66 to the minute. Do not forget that the best introduction to the study of medicine is a primer of logic. And, though your reading is important, remember that the patients are more important still. In the words of Trousseau, "Il faut voir, toujours voir, des malades."

The Crowded Curriculum.

The medical curriculum is much too crowded; your teachers lament the fact quite as much as you do. Any one of them has just got time to help you to use terms correctly and to begin to observe when you are whisked off to a colleague for tuition in another subject. It would be good to teach you how to think, but there is no time. I should like to see some unloading of this overburdened curriculum, but so far the powers that be give no sign. Something seems to bar the way; vested interest perhaps. Subject after subject has been added, but nothing seems to have been taken away. Perhaps nothing should be taken away, but rather a drastic revision of the early subjects be made. For it is clear to me that the place to unload is at the beginning and not at the end. Although in a sense it is not your problem, yet you will, perhaps, forgive me if I tell you my ideas on this subject. Moreever, I may not get so good an opportunity again! The revision should, in my opinion, be undertaken with the idea of making everything concentrate upon the study of the sick person. I would teach students to examine blood in the physiological laboratory by the same method used in the wards, and I venture to wander from my own strict province and suggest that the jugular vein might be exposed in the rooms by the same dissection used by the surgeon to tie it in life. I would pursue the same plan in relation to all functions and all structures. I sometimes wonder if it has been a gain to the teaching of students that we have pure physiologists and pure anatomists at the head of these departments instead of physicians and surgeons as formerly. I should be very jealous of including anything in the preliminary subjects which cannot be dealt with in such a way as to have a direct bearing upon clinical and pathological work. I would familiarise the student in the physiological room with several methods and instruments which he will use in the wards, but which, if I may judge by my own experience, he rarely masters properly—the ophthalmoscope, the laryngoscope, the stethoscope, and blood-counting instruments. Is not the fundus occuli a natural object for study, and how does one see it except with the ophthalmoscope? But if I ask my clerk to look at an example of optic neuritis he excuses himself and says that he has not yet "done eyes"; yet it is quite likely that he knows a great deal about the theories of colour blindness. When a student arrives at the stage towards which all his studies should tend, and begins to practise, would it not be a good exchange, to have omitted a study of the minute structure of the organ of Corti, and to have learnt how to see the membrana tympani clearly? I would introduce the simpler principles and methods of bacteriological technique into the teaching of physiology. The student knows all about the presence of a minute trace of potassium sulphocyanide in the saliva, and how to test it—an old and valueless fact; but quite often he cannot tell you anything at all about the bacteria in the same secretion, though these have an importance in his work which nothing can exaggerate. And so also with the flora of the normal fæces; the subject is regarded by the student when he enters the wards, and long afterwards, as a mystery, and knowledge about it is deemed a perquisite of the bacteriologist.

Neglected Subjects.

In some way or other I would modify the first part of the medical course so that the student is better material when he enters the wards, out-patient rooms, or post-mortem room. If he is better material he will learn more readily and make more use of his opportunities, and this will be equivalent to a gain of time for these, his most important years. And he badly wants more time. He wants it, not only to relieve the congestion during these years, but also because there are two or three subjects that have lagged considerably behind the times and are in need of recognition.

1. One of these subjects is *dietetics*. It is an astonishing fact that in this country—perhaps more

than in any other—hundreds of doctors are qualified to practise every year with little more than two ideas about diet. One of these ideas is a remnant of their physiology days, when they were taught the five ingredients of food essential to life; and the other idea—whose origin I do not know, it is certainly legendary—is the fixed belief that if a patient is acutely ill, whatever the nature of his malady, milk is the thing to feed him on. Now, the first of these ideas is not of great practical value in the treatment of disease, because Nature has anticipated the physiologist in her instructions. The second idea does sometimes fit the case, but it gets so strained in its application at other times that the results are frequently somewhat disastrous. Whatever the ultimate outcome may be of the present interest shown in "toxic idiopathies" and in "vitamins," there will be at least one important issue, and that is that more attention will be given to diet in disease.

2. The second subject which I regard as demanding more attention in the compulsory part of the curriculum is *Infection*. Not that smattering of bacteriology which is nowadays required of the student at his final examination, but a proper enlightenment on the sequence of changes taking place as the result of interaction between an infecting organism and the body tissues and functions. Considering the enormous importance and the great frequency of these events, it is, once more, astonishing how little room is given to the subject in the medical course. There is to-day an accumulation of important facts—the theories may be omitted—in this connexion which the student should be required to know.

3. The third subject that lags behind is *Psychology*. I doubt if psycho-analysis, as we see it, would have arrived had the practitioner recognised the importance or been capable of investigating the psychological side of his patient's case. And I feel quite sure that the only cure for the more pseudo-scientific aspects of psycho-analysis will be the inclusion, in recognised form in hospital practice, of psychological methods. It is rather strange when we come to think of it, that we teach the student elaborate physiology of many functions of the body that are relatively unimportant, and entirely omit to teach him any physiology of the most important function of all—namely, the mind. The practitioner, in many instances, learns these things for himself, but only after much painful experience; and even then he misses the great advantages that might be given him by inclusion of elementary principles.

PRIVILEGES OF QUALIFICATION.

And now let me suppose that you have finished all this preliminary training, and that you have satisfied your examiners that you are ready to begin the more serious study of medicine proper. In other words, you are qualified to practise. With the granting of your degree certain privileges are accorded you: you may sign a death certificate, you may sue for fees in a court of law, you are excused attendance upon juries, and your horses may not be taken for the fire brigade. Since none of us keeps horses any longer, the last-named ancient exemption, obviously framed more in the interest of the public than of ourselves, scarcely interests us. Non-attendance of medical men upon juries seems clearly to have resulted from the frequent interruptions suffered by learned judges owing to the doctor being summoned for some sudden emergency, and therefore this privilege again is a benefit for others rather than for us. To sue for money that one has earned, and to get justice, is no more privilege that is expected by every citizen of a properly governed community. This benefit appears to have been specified because *un*qualified practitioners may *not* sue for fees. But inasmuch as these gentlemen always take care to be paid for their services in advance, the benefit is actually more in their favour than in ours. Signing a death certificate is asking for all sorts of trouble, for the doctor who signs one may at any subsequent time find himself called upon to swear to all the particulars in a coroner's court. On the other hand, having signed it, there is no compunction whatever on the part of the coroner to accept it. This state of things is recognised to be so anomalous that a medical man is under no compulsion to sign a death certificate at all. Nor do I suppose that any wise man ever would, were it not that declining to do so places the friends of the deceased in an impossible position. For the same law which has made no proper provision for the certification of death, on the one hand demands that the undertaker shall not function without it, and on the other compels the friends to dispose of the body, in which, to make matters still more confusing, it is specifically declared there is no property.

So much, then, for the "privileges," euphemistically so-called, accorded by law to the qualified medical practitioner. With all the legal privileges the other way the wonder is that anyone takes the trouble to get qualified at all!

Vain Argument.

But, anyway, here you are at length with your well-earned degree. Its registration at least gives you some legal cover in case of accidents, provided you can satisfy the court that you have exercised "reasonable care and skill"—and the interpretation of the word "reasonable" need not give you over much concern. I think you are, in actual fact, and take you all in all, perhaps the best educated and best trained man amongst your fellows. But you must not think that this will be generally recognised. On the contrary, quite a large number of people, who have had no training at all, will argue medicine with you both in its art and in its science, and will treat you as though you have no expert knowledge whatever. They will quote their equally lay friends, and books written by equally lay authors, proving conclusively a large number of "facts" that your teachers and you yourself know to be the wildest imaginings. And they will express surprise that you are so out of date. "What, you haven't read Mr. Knowall Things' book on cancer, in which he proves that if you keep yourself fit and attend to your bowels you won't get the disease?" "No, who *is* Mr. Knowall Things; hasn't he written about economics or something?" "Yes, but don't you think, doctor, that he has studied this question thoroughly?" "No," you will say, "I'm afraid I don't. You see, the problem of cancer isn't touched by a recital of all these trite details of your author as to the value of fresh fruit for breakfast and the avoidance of constipation. The problem of cancer is not why it affects the unhealthy, but why it attacks the healthy. But if Mr. Knowall Things really wishes to benefit humanity let him hand over the proceeds of his book to the British Empire Cancer Campaign, or some equally good organisation, so that men who are properly trained and equipped for research may get on with the problem." Then there is Mr. Blank, the distinguished novelist, and Mr. Nought, the playwright, and there is an eminent divine, and a politician, and a newspaper proprietor—all of them ready to tell you exactly what is wrong with your patient, and exactly what should be done for him, even if they are not writing books and articles on the exact causation of what are to you obscure diseases. Well, you must never lose your sense of humour; you must remember that all this is part of the comedy of things. There is even food for psychological study in it, for underneath all this misdirected interest in the diseases of their friends, in disease in general, and especially in cancer, does there not lurk the unacknowledged fear that the dread scourge may some day count these folk amongst its victims?

EXIGENT PATIENTS.

Since you will find your time very fully occupied with your work, and since it is my duty to help you to save as many "grains of the golden sand" as possible, I advise you to learn early how to give all these people a short shrift; you will then have more time for those choice spirits who actually consider that you know more about diseases and their treatment than they do, and also for these tiresome folk too, when they themselves fall ill and need you. You must be so jealous of your time that you will grudge it for another class also, and that is the people who would like you to live their lives for them. They do not, of course, put it like that when they come to see you, but that is what it amounts to. Of course, you cannot do it, and it would be very bad treatment if you could. It is a law of our existence that every one of us must live his or her own life separately. Merging our being in that of the doctor is not life but parasitism. Some of these patients you will find have no exigency in their day, and without exigency none of us can be healthy. Exigency you will find to be an invaluable prescription. To have to do something at 9 o'clock every morning, which, not being done, you are yourself (if you are selfish), or your friend (if you love him) is left hungry or unhappy—that is apparently one of the laws of health. Well, these patients whom I have in mind do not conform to this law, and they fall ill, and they come to you because, as they say, they have heard how clever you are. They have already seen many doctors and they have had many treatments, and so far no one has been able to diagnose their case. They are so anxious to be well and like other people. And they finish by saying, "What are you going to do about it, doctor?" In as kindly a way as possible you explain that there is no "it," and that *they* and not *you* must do things about it if they really want health. Some of them have got into a tangle with their emotions, or their undisciplined emotions (for their mothers were often as foolish as they) have landed them in a hopeless mess with their affairs, domestic and otherwise. The symptoms they relate, and the obscure disease they attribute their unhappiness and unfitness to, are but an unrecognised disguise for an emotional stirring that is still unsatisfied. Some of them really do suffer from a slight, perhaps physically incurable, handicap which is enormously overloaded in their mind by a nexus of depressing, though mentally absorbing, ideas. They memorise ancient troubles: the operations they have had were the most difficult of their kind the surgeons ever had to perform; their diseases had all the known complications and some others; recovery was several times despaired of; "so it's not surprising, is it, doctor, that I suffer so much?" Again you try to be of help, though experience soon teaches you that it is not certain f, in some of these cases, help that is successful would be welcomed. Anyway, it is always *you* who must do the energising and the activating. I was explaining to one of these patients recently that, in my judgment, it was her attitude towards her trouble hat required altering rather than that the trouble tself needed attention. To which, with a look of complete confidence in my discrimination, and with a bland smile, she said, "Will you *treat* me for my attitude, doctor?" Lastly, there are the patients who have not made up their minds if it is better to be well han ill. You must get the decision clearly and convincingly made before you embark upon treating these.

LAWS OF CAUSE AND EFFECT.

My advice to you is to tell your patients as clearly s you can why they are ill, be the illness physical or mental. Point out to them that certain results have ollowed the operation of the laws of cause and effect, nd that these results are the things they wish you o relieve. It is sometimes necessary to remind them ow immutable, how inviolable, are these "Chancellors f God" as Emerson called them, adamant if broken, ut beneficent if obeyed. Tell them how best they an re-trace their steps and help them all you can. But do not argue with them, or get heartaches because hey do not take your advice. That you are bound to do, f course, at first, but it is a juvenility that disappears ith the years. I tell you these things because I want o save time for you if I can, and I wish to get you o maturity earlier in your career than I am doing. he sooner you mature the greater your value to the orld. Do not think me cynical about certain types f patients. Thank God, they will be in the minority. That is, unless you prove to be one of those persons who possess a subtle attraction for the tiresome people I have mentioned. Then my best advice to you is to take long and frequent holidays and to go abroad for them. And you should put on duty the colleague who is the keenest golfer in the district. No, most of your patients will really need your help, will loyally observe your advice, and will try hard to regain their health. You must give them all your knowledge, all your skill and all your time ungrudgingly. Some of them will rely upon you; to these you must give yourself in addition, for these you must, if necessary, sweat blood.

What experiences will you not have! What wealth of material for the study of human nature will you not meet! In what unique situations will you not find yourselves! In all these things you will, if you are wise, still be the student and still the observer. You will watch the play of men's passions: love, envy, avarice; you will see the havoc these elemental forces can wreak upon their physical as well as upon their moral health. You will meet men and women whose cases puzzle you until you realise that they are ill because of a fruitless remorse or because of a baffled ambition. You will discover that there are, after all, such things as broken hearts, though there are no "physical signs" of disease, and "graphic records" point to no defect. You will see men enervated by the intoxication of success or stimulated to robust health by the smart of failure. You will be able to trace association between physical and mental idiosyncrasies on the one hand, and domestic relations, business habits, political exigencies, and even religious emotion on the other. You will often be able to interpret men's weaknesses, and your knowledge will make you charitable; you will sometimes understand their strength, and your insight will increase your admiration. The streak of genius that attracts your worship will also evoke your warning. You will be privileged to add not a little to the world's progress and happiness by steering the activities of some who are but poor navigators of their own ship, yet who carry a precious freight, whether it be the power to lead men wisely or to charm away their griefs.

THE TRIUMPH OF PRINCIPLES.

You will find medicine a jealous mistress, but you have chosen her, and if you serve her loyally she will return your devotion in full measure. This does not mean that you will lead small, ignoble lives. You will follow George Wyndham's dictum: "If we cannot make our lives long, let us make them broad." Indeed, that is a part of your duty. You will need all the antennæ that you can develop so that you can touch people at many points. All this you can do and still be your self, made wise by fusion with life, so that you become an artist and not a mere technician. In your work, however, though you will be tempted to diffuse, you must concentrate. Politics, literature, art—each one will say to you, "Come out and try us," but you will decline. More subtle will be the temptation to stray into some by-way of medicine itself, something that promises the panacea that men crave for. You will resist this also. You will be chary of the short cut, the royal road, and the leap that science, no more than nature, never takes. Always you will keep an open mind. It will be well if you add to your daily prayer: "Save me from obsessions." You will remember that, just as in life nothing can bring men peace, so in medicine nothing can bring them health, but the triumph of principles. This thought reminds me once more of Sydenham, and I cannot more fitly end these remarks than with another quotation from him. He is concluding his "Epistolary Dissertation," and he says, "And now, worthy Sir, I desire you to accept this small treatise favourably which was designedly written to return you thanks for your approbation of my other works. And indeed, I have so seldom received anything like approbation, that either I have merited no such thing, or else the candid and generous men whom nature has framed with such excellency of mind as to know how to be grateful, are very few, ... yet, notwithstanding, I endeavour all I can and will do so, to learn and promote the method of curing diseases, and to instruct those who are less conversant in practice than myself, if any such there be. Let other people think of me what they please. For having nicely weighed whether it is better to be beneficent to men or be praised by them, I find the first preponderates and most conduces to peace of mind. As for fame and popular applause, they are lighter than a feather or a bubble, and more vain than the shadow of a dream."

Special Articles.

SCOTLAND.

(From our own Correspondent.)

St. Andrews Institute for Clinical Research.

At the opening of the winter session Dr. Maitland Ramsay delivered his inaugural address as Director. There was a large attendance of practitioners from Fife and from Dundee. Dr. Ramsay referred in grateful and feeling terms to the founder of the Institute, Sir James Mackenzie, and expressed gratification that though he was no longer present his name was still associated with the Institute as its President. He dealt with the general principles of clinical research as enunciated by Sir James Mackenzie and with the fact that the general practitioner has continuous opportunities of furthering the knowledge of disease by clinical observation in his practice. He particularly emphasised the importance of clinical observation and commented on the tendency to neglect this primary function of clinical medicine and to rely upon laboratory reports in its stead. While these were of inestimable value they could never replace that accurate observation and weighing of clinical symptoms upon which the older physicians relied. The value of the sensations experienced by the patient was often underestimated, but as a clinical ophthalmologist he could assure his audience that these were of the utmost diagnostic and prognostic significance in diseased conditions of the eye. He drew a close parallel between the symptoms of eyestrain and the sensations and disabilities experienced by patients suffering from cardiac inadequacy. Dr. Ramsay hoped that his audience would take full advantage of the facilities of the Institute for recording their observations. Dr. C. E. Douglas (Cupar), secretary of the Fife Medical Association, urged his audience by their coöperation to ensure the continued success of the Institute.

Royal Medico-Chirurgical Society of Glasgow.

The opening meeting of this Society was held on Oct. 3rd, when Prof. Archibald Young delivered his presidential address on the Limitations of Surgery, Past and Present. In introducing his subject the President declared himself to be far from taking a gloomy view in his outlook on surgery as, perhaps, the title might suggest. Rather was his aim to indicate the directions in which surgery as a science might progress and the lines along which further research might most profitably be pursued. In the course of a short historical survey of the earlier surgical achievements he referred to an interesting address by Erichsen in 1886, in which the following pronouncement occurred :—

> That the final limits of Surgery have been reached, in the direction of all that is mechanical and manipulative, there can be, I venture to think, little doubt. . . . We have thus reached, in many of our most important operations, the final limit to which Surgery can be carried. . . . Art is final, but Science is illimitable We have reached finality in the mere mechanical Art of Surgery, both as to the expansion of its limits and the precision of its practice. But we are yet on the threshold of the Science of Surgery.

While such a pronouncement, said the President, made over 40 years ago, and by one of the foremost surgeons of that day, could not, in view of the notable advances in operative method and technique since that time, be accepted as even approximately correct, it contained, nevertheless, more than a grain of truth, and it emphasised the separate rôles, and the very different outlook of surgery, the purely technical art, and surgery, the science. The field of cranial surgery was chosen to illustrate some of the victories over the restraints and limitations which had rendered progress difficult, if not impossible, and reference was made in particular to what were perhaps the greatest of such victories—namely, the discovery and elaboration of anæsthetics and the conquest of microbic infection by the introduction of antiseptic practice and technique. The President then outlined a few of the limitations that yet remained to hinder the advance of the science of surgery—the problems of repair of tissues—the manner in which the organs functioned, and the question of periodicity as a fundamental mode of action—tumour growth—the action of X rays, radium, and irradiation, and many other such problems, and urged the necessity for combined research by all concerned. "Before we can hope to set aside materially the restraints and limitations that still remain, we shall have to adopt all sorts of lines of research. We must adopt in the most unselfish spirit a generous and all-embracing system of collaborative research, by which the experience, enthusiasm, original thought, and varying points of view of many workers, not only in pure surgery but also in all the allied sciences, may have cumulative weight."

Welfare of the Blind.

The second report of the Scottish Advisory Committee on the Welfare of the Blind [1] which has just been issued covers the period 1921–24. It is signed by Sir David Paulin, chairman, and Major Sir William Reid, vice-chairman, on behalf of the Committee, which includes representatives of public authorities, voluntary agencies, and blind workers. This Committee was set up shortly after the passing of the Blind Persons Act, 1920, to advise the Scottish Board of Health on the care and supervision of the blind in Scotland. There are, the report states, 6054 blind persons in Scotland on the Central Register kept by the Board of Health. Of the total number of registered blind, 399 are under 16 years of age and 3627 are over 50. (The latter, in respect of age, are eligible for blind pensions.) The Committee record with pleasure the striking decrease in the number of blind children under 5 years of age, from 48 in 1920 to 15 on April 1st, 1924 ; 3650 blind persons, or 60 per cent. of the total number of blind in Scotland, are unemployable. The report discusses and makes recommendations on many varied subjects, recommendations which have been extensively adopted by the Board of Health and are now the accepted policy in Scotland. On the question of municipalisation the Committee state, "The general view held by us was that municipalisation of institutions for the blind was a question for the future rather than for the present. The view was also expressed, however that the passing of the Blind Persons Act was an admission of the failure of voluntary effort, and tha provision for the blind should be made entirely by public authorities and not be left to charity. By majority we agreed to recommend that as a genera principle the municipilisation of workshops for th blind is not at present desirable."

Amending Legislation.

The Committee disapprove of the Blind Person Act (1920) Amendment Bill, as drafted, and the submit an alternative scheme of amending legislation. In the Committee's opinion new legislatio must deal principally with the problem of the unemployable and necessitous blind. They recommen that a graduated compensation allowance of no less than £1 a week should be granted to blind person within a prescribed means limit and that this allow ance should be paid to the capable and incapable blind alike. The graduated scale starts with the maximum allowance of £1 a week where the means of the blind person do not exceed £105 a year and ends where the means exceed £199 10*s.* a year. The Committee recommend that two-thirds of the cost of the compensation allowance should be met by the State and one-third by the local authorities, and they estimate that the net additional annual charge for Scotland, on the basis of £1 a week compensation, would be £113,000 on the State and £86,000 on the ocal authorities.

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[1] H.M. Stationery Office, 120, George-street, Edinburgh. 1s.

Post-Graduate Medical Teaching in Glasgow.

The teaching scheme of the Glasgow Post-Graduate Medical Association is divided into three groups—namely, weekly demonstrations, special courses, and clinical assistantships—and the syllabus for the forthcoming winter session has just been issued. The series of demonstrations at the various hospitals on Wednesday afternoons has been arranged on similar ines to those of former years. Three special courses will be held on medical ophthalmology, conducted by members of the staffs of the Eye Infirmary, the Ophthalmic Institution, and the general hospitals; on the Mother and the Newborn Infant, under Prof. J. M. Munro Kerr, Prof. Leonard Findlay, Dr. S. J. Cameron, Dr. James Hendry, and Dr. J. N. Cruickshank; and on Fractures, under Mr. George H. Edington and Mr. Charles Bennett. A limited number of clinical assistantships, for periods of hree months, is available at certain of the institutions taking part in the work of the Association. Copies of the syllabus and further particulars may be had from the Secretary of the Association, the University, Glasgow.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Royal Academy of Medicine in Ireland.

THE annual general meeting of the Royal Academy of Medicine in Ireland was held last week. Sir James Craig, King's Professor of Medicine in the School of Physics, was elected president. Prof. F. C. Purser was lected president of the Section of Medicine, Mr. R. C. B. Maunsell of the Section of Surgery. Most f the other officers are unchanged. The report of he council for the year 1923–24 stated that during he session 1923–24 the Academy consisted of 193 Fellows, 13 Members, and 26 Student Associates, an ncrease of 20 Fellows and 6 Members over the previous ear. Having noticed the loss by death of three onoured Fellows, Wallace Beatty, Alexander C. O'Sullivan, and Sir Andrew Horne, the report records hat the urgent need for the provision of facilities in Dublin for research in connexion with medicine and the llied sciences had been brought before the council. A conference of the various licensing corporations in reland was invited to meet the members to discuss the matter. At that conference a scheme for the establishment of a research institute was drafted, and the draft as been submitted to the various corporations which were represented. As soon as the approval of hese bodies has been received it is proposed to ubmit the scheme to the Government. The council as good grounds for believing that the scheme will be adopted, and hopes that in the next eport it will be possible to speak of the actual stablishment of the institute.

Tuberculosis in Belfast.

It is only ten years since the Belfast Corporation ut into operation the existing scheme for the preven-on and treatment of tuberculosis, and the results chieved are noteworthy. The number of new cases xamined at the various centres during the year 1923 shows an increase of 227 on the previous year, this increase being probably attributable to greater care in notification. The death-rate in the city from pulmonary tuberculosis during 1923 has fallen for the fifth year in succession, and now stands at 1·3 per 1000, a reduction of 51 per cent. as compared with 1918, and of 72 per cent. as compared with 1890, when the death-rate was 4·7 per 1000. This affords some grounds for satisfaction, as the chief tuberculosis officer states in his annual report. A slight fall also occurred in the death-rate from the non-pulmonary forms of tuberculosis, which now stands at 0·3 per 1000, as compared with 0·36 in the previous year. The ratio of pulmonary tuberculosis to other forms of tuberculosis was 72 to 28. Of the 1151 patients found to be suffering from tuberculosis during the year 420, or over 36 per cent., had had personal association with tuberculosis amongst other members of their own families. In only 20 cases, or less than 5 per cent., was the relationship that of husband and wife. The report believes that "the most fruitful source of infection in children is probably through food and table utensils, and experiments have shown that not only tubercle bacilli but other infectious germs may be conveyed on the surface of tableware, such as cups, plates, knives, spoons, &c." The necessity for extreme cleanliness is emphasised. The nurses visited 902 homes with tuberculous patients. Of these 131 were reported as "good or very good," 567 as "average," 135 as "bad," and 69 as "very bad" or "exceptionally bad." On the whole, these figures suggest that the housing conditions in Belfast are relatively good compared with many other cities. Tenements hardly exist. The result of pregnancy in 1624 tuberculous mothers is recorded. Of these 129 miscarried, 1451 were delivered of a living child at full term, and 44 were delivered of a stillborn child at full term. Dental treatments were given to 1022 patients. An active educational propaganda was carried on during the year. The number of discharged soldiers treated during the year was 359. The open-air school for children living in contact with patients suffering from tuberculosis has been in successful operation, the number of children in attendance being 116.

A Charge of Bribery.

Last week Thomas Moran, a member of the dissolved Roscommon County Board of Health, was at Boyle remanded on bail on a charge of having solicited from Dr. McDonnell, a candidate for the position of medical officer of Kiltoom dispensary district, a bribe for his vote. Mr. Neilan, State solicitor, recalled that as a result of a complaint an inquiry was held by the Local Government Department. The election, in which Dr. McDonnell was defeated, was set aside and the Board of Health dissolved. Dr. McDonnell described how he met the accused in a hotel in Elphin, and asked him for his vote. "He replied," said witness, "he would be at a great loss if he voted for me; that there were between £400 and £500 being spent on the election, and that if I gave him that amount he could have me elected. He also said he would require £50 for his own vote, whether I won or lost."

THE "MILITARY SURGEON."—Col. J. R. Kean, of the United States Army, has been selected as the new editor of the *Military Surgeon.* On his retirement in June last, after 40 years service in the Medical Corps, he received a letter from the Acting Chief of Staff of the Corps Area, in which he was serving, expressing regret that he (Col. Kean) was retiring, and summing up his distinguished career, observing that he had been "a controlling influence wherever placed," that he had displayed signal abilities as chief surgeon of a corps in the war with Spain, that as chief sanitary officer in Cuba his service in the eradication of yellow fever had been of exceptional value, and that the Army Medical Department had gained repute owing to his advocacy of a Medical Reserve Corps (1908), and through his organisation of the American Red Cross base hospitals, and the U.S.A. Ambulance Service for duty with the French Army in the late war.

MOTOR CARS AND ACCESSORIES FOR 1925.

THE SHOW AT OLYMPIA.

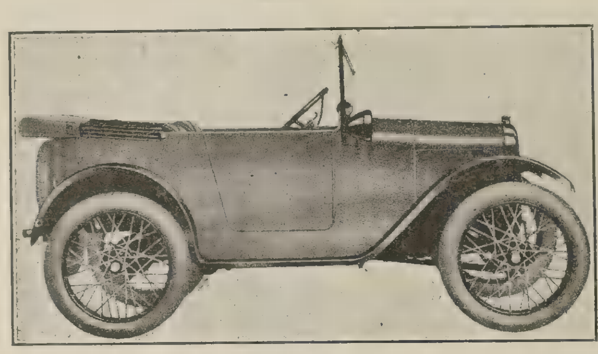
BY J. MARSHALL, M.I.A.E.,
LONDON MANAGER OF MESSRS. MANN, EGERTON AND CO., LTD.; OFFICIAL CONSULTING ENGINEER, MEDICAL INSURANCE AGENCY.

AMONG ardent motorists no political crisis can overshadow the importance of the Olympian motor show. It is likely to be as well attended as it was last year by eager amateurs. The best time to visit the show is quite early in the morning, between 10 and 12, and by those who can spare time on working days Saturdays should be avoided. The notes I have made on various types of cars which have proved popular in the past among medical men must be regarded merely as an indication of stands that should not be missed, certainly not as an exhaustive guide to a magnificent but somewhat unwieldy exhibition. Experienced motorists will know where to look for novelties and value; novices can only be urged not to buy blindly, but to reserve their choice if bewildered by the mass of good cars arranged for their inspection until they have sought the advice of an impartial expert. With these reservations I would suggest that visits be paid to the following stands.

Motor Cars.

Austin Motor Co. (Stand No. 141).—The Austin range of cars for 1925, at considerably reduced prices, comprise the well-known models of 20, 12, and 7 h.p., the principal alteration to the larger cars being the addition of four-wheel brakes and the introduction of a new 20 h.p. chassis with a very low frame, intended to facilitate entrance to closed bodies. This new frame is heavier than the old one and possesses a higher curve over the rear axle, where a larger spring deflection is given. Its advantages are particularly evident on the new "Carlton" saloon. A point of special interest on this and other bodies fitted on this chassis is the "all metal" framework which has been adopted in place of the usual wooden members; the body platform, stay supports, and, in fact, all parts generally made of wood are now being constructed of steel, which is claimed to provide a frame some 25 per cent. lighter than a wooden one. The 12 h.p. model is practically the same as last year, with the addition of four-wheel brakes. The four-wheel braking system adopted is a simple one, designed by the makers of the car; the front wheel brakes and their actuating mechanism are fitted as a complete unit, independent of the frame. The front brakes are compensated in relation to those at the rear; the compensation is located immediately beyond the pedal connexion and incorporates a hand adjustment, whilst the hand lever applies shoes to the drum mounted behind the gear box. The 7 h.p. Austin model has been improved in appearance, slightly enlarged, and modified in some minor respects (see Fig. 1). Recent success in the 200 miles race at Brooklands has proved that these little cars can stand a vast amount of hard work at high speeds. The following models can be seen on the stand: Touring car, £355, and "Windsor" saloon, £475, on 12 h.p. chassis; "Carlton" saloon, £675, and "Mayfair" saloon, £795, on 20 h.p. chassis Austin "Seven" touring, £155, and chassis, £120.

FIG. 1.



The "Austin seven" new model.

A.C. (Stand No. 18).—These cars are worth a visit; they are built on graceful lines, well proportioned, and the bodies are well constructed and extremely comfortable. The chassis is a creditable feat of engineering, and this make of car presents undoubted value at prices from £275 upwards. The engine (both four- and six-cylinder) is a sweet-running unit, and the braking power is unusually good; generally it will be found that the comfort of the owner-driver has been studied in many ways.

Standard Motor Co. (Stand No. 211).—As one of the oldest British makes these cars are always interesting, both for their attractive prices and bodywork designed to give roominess and comfort; designs show very slight modifications of last year's models. The 11 h.p. two- and four-seater at £235, the 11 h.p. "Weymann" saloon at £375, and the 14 h.p. saloon at £475 present excellent value.

Sunbeam Cars (Stand No. 98).—The prices of the 12/30, 14/40, and 20/60 h.p. (open car) remain unaltered. The enclosed types of the 20/60 h.p., however, have been increased slightly in price. Considering the quality of the product, the prices are not unduly high, since for reliability and general excellence of workmanship the Sunbeam models can scarcely be beaten. With the exception of the 12/30 h.p. all models are fitted with four-wheel brakes, and "Weymann" fabric bodies can be had for the 12/30 and 14/40 h.p. chassis.

Calthorpe Cars (Stand No. 86).—The 12/20 h.p. two- and four-seater, 12/20 h.p. saloon, and six-cylinder 14/45 h.p. models are being shown. These cars attract by reason of moderate prices and excellent coachwork. The saloon at £425 is worth close study, for it is roomy and well finished, and the 15/45 h.p. six-cylinder bristles with up-to-date ideas, while the touring model can be considered as giving excellent value at £395. The petrol consumption of the Calthorpes is extremely low, the 12/20 h.p. doing some 30 miles per gallon.

Bean Cars (Stand No. 89).—The exhibit comprises examples of the 12 and 14 h.p. The prices are practically the same as last year, but extra equipment is now included. The four-wheel brakes are of the "Perrot" type; balloon tyres and hydraulic shock absorbers on back and front axles are provided and on the touring models a windscreen for the rear seats. The prices are: 12 h.p. two-seater touring, £335; 12 h.p. four-seater touring, £345; 12 h.p. two-seater coupé, £395; 14 h.p. touring, £395; 14 h.p. saloon, £525. These cars are solidly built and the bodies are capacious. They will give continuous service over periods of prolonged hard work.

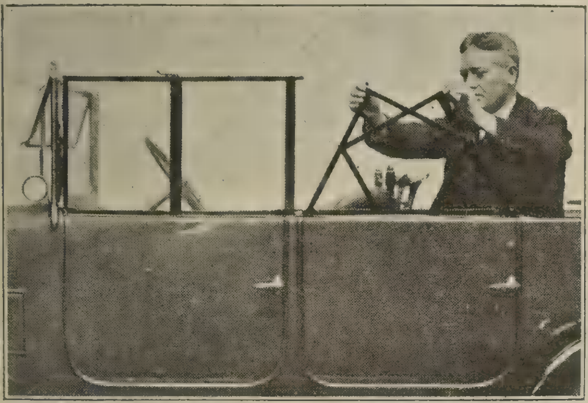
Fiat Motors (Stand No. 129).—These cars are essentially the same as last year. There are some minor modifications; for instance, the 10/15 h.p. has certain improvements to its electrical auxiliaries, and the longer chassis introduced last year has its steering column less raked, in order to give plenty of space for closed bodies. Prices are unaltered from those announced in August. These cars present remarkably good value.

Hillman Cars (Stand No. 167).—At £358 for the two-seater and £375 for the four- and five-seater, with patent all-weather bodies, Hillman cars show slightly increased prices, but with extra equipment and refinement they are well worth their present cost. The body has been widened considerably. 28-inch Dunlop cord balloon tyres and a comprehensive list of accessories are included.

Citroën Cars, Ltd. (Stand No. 23).—Notwithstanding the substantial decrease in price made a few months ago, further reductions have now taken place, and in addition numerous accessories are included. The Citroën, always reliable and reasonably priced, now gives wonderful value. The 7·5 h.p. with two-seater body costs only £145, the 11·4 h.p. English body four-seater £250, and the four-seater saloon £295. These are complete with balloon tyres, clock, speedometer, Boyce motometer, driving mirror, automatic windscreen wiper; and on the touring models folding rear windscreen. The French-built bodies are not very comfortable, the seats being too high in relation to the size of the body, but the English bodies are extremely well finished and will make a wide appeal.

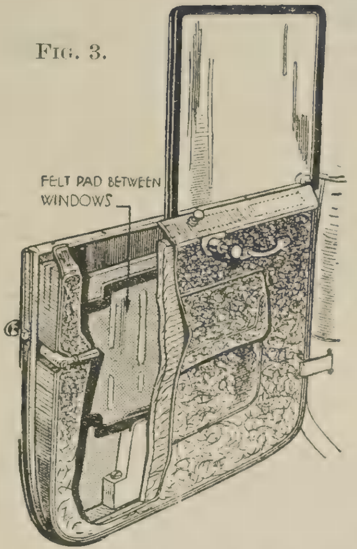
Humber, Ltd. (Stand No. 128).—Three models are now being marketed; the 8 h.p., the new 12 h.p., and the 15·9 h.p. These cars for a number of years have been noticeably well finished, and this year's models are up to standard. The new design of the all-weather side screens is probably unique; the screens can be screwed downwards and concealed in two or three sections in the curved side lines of the doors and body. The celluloid panels are fitted under compression in narrow metal frames to prevent buckling. These panels are formed over the doors and sides of the body in two halves, and when erect are kept together at the top by spring clips suitably held by a plated screw, so as to form a rigid structure. The method of storage and the appearance when up is clearly shown in Figs. 2 and 3. This system should solve many of the troubles now experienced in connexion with the ordinary type of all-weather fittings. The prices are: 8 h.p. from £240; 12 h.p. from £440; 15·9 h.p. from £630.

FIG. 2.



Method of raising and lowering side celluloid panels in Humber touring models.

FIG. 3.



Showing cavity in door where the Humber celluloid panels are housed when not in use.

Daimler Company (Stand No. 170).—What is termed by the makers "the largest car in the world" is shown—i.e., the 57 h.p. chassis, which was designed and built during the present year for the use of the King. One of the admirable qualities of this car is the very low entrance. The complete range of models shown is as follows: 16, 20, 25, 30, 35, 45, and 57 h.p., all of them with the Daimler six-cylinder sleeve valve engine, and worm and wheel back axle. In addition, the 10, 14, and 16 h.p. B.S.A. are on view. Much of the exceptional silence that characterises the running of these cars is due to a system of insulating the body from most of the shocks to which the chassis is subject. This is achieved by fitting an independent steel body frame which rests on rubber buffers situated on the top of the chassis. Moreover, the scuttle does not touch the bonnet in any way, so that complete insulation is ensured. Fabric panelled saloons are obtainable on the 35, 25, and 20 h.p. models for £250, and on the 16 h.p. for £160.

Vauxhall Motors, Ltd. (Stand No. 140).—The Vauxhall cars are always of distinguished appearance, and have established a sound reputation in many good road performances. The alterations from last year's types are slight; the 14/40, 23/60, and 30/98 h.p. models continue to be made. Some changes have been effected in the 14/40; a four-speed gear box, wire wheels, and Dunlop balloon tyres are now fitted. The 23/60 h.p. has four wheel brakes fitted as standard. These are of their well-known cable operated type.

Rover Co., Ltd. (Stand No. 173).—This firm have brought out a new 13·9 h.p. two-litre chassis which has many original and up-to-date features. It is capable, in full touring trim, of a maximum speed of 60 miles per hour. At first sight the chassis may seem somewhat heavy and complicated, but in view of the accessibility of the parts this can readily be forgiven. Of the other models, the 8 h.p. two-cylinder air-cooled type is being retained, and also the new 9 h.p. four-cylinder overhead valve. The four-seater body of the last-named car has only one wide door; this gives particularly easy access to the rear seats as the front near-side cushion is hinged forward, and the separate back is swung round so as to rest at right angles to the back of the driver's seat.

De Dion Bouton Cars (Stand No. 212).—The manufacturers are showing various types of their 12/28 and 15/43 h.p. cars. They are among the oldest and most reliable French car-makers, and the De Dion Bouton chassis has always had a good name. A delightfully finished 2/4 seater coupé body is shown here called the "Sportsman." It is very roomy, is fitted with two adjustable front seats, two sliding occasional seats, wide doors, and accommodation is provided for carrying luggage, golf clubs, &c., the cost of this body on a 12/28 h.p. chassis being £695. The prices quoted are, perhaps, a little on the high side by comparison with other well-constructed chassis, but for those who are prepared to pay for the undoubted security of good workmanship embodied in these cars I can cordially recommend them.

Cubitt Engineering Co. (Stand No. 19).—This firm concentrates on one type only—namely, the 15·9 h.p. (tax £16). The production is of particularly robust nature and has an unusually roomy body. By standardisation of one type, the makers have been able to reduce their prices on every model by £60 per car. At the present price the car appears a good proposition.

General Motors, Ltd., *Buick* (Stand No. 138).—These are among the most reliable and popular types of

American- and Canadian-built cars. They are conspicuous for smooth running and large comfortable bodies. The new 20 h.p. 6-cylinder is an exact replica on a small scale of the "Big Six," which has been running successfully for some years, and it may be relied on to show the Buick qualities of power and dependability. At £395 for the tourer and £525 for a saloon it can be considered cheap.

Unic (Stand No. 178).—These cars are always worth inspection; the 12/23 h.p. French saloon at £495 and the English saloon, or landaulette, at £550, are, perhaps, rather too highly priced. The chassis is, however, reliable, and once the initial cost is over the owners of Unics are, as a rule, well satisfied with their choice.

Leyland Motors (Stand No. 219).—The Trojan shown on this stand will attract attention by its unconventional appearance and design. The principle on which this car is built is peculiar to itself, and has proved quite satisfactory during 18 months' trial under strenuous conditions to many owners, including a large number of doctors. The Trojan has solid tyres, compensated for by special springs and a two-stroke engine which possesses extraordinary pulling powers.

Morris Motors (Stand No. 210).—A crowd will doubtless be attracted to the stand where the wonderful value given in all models made by this firm is demonstrated. These cars are all strong and reliable, and it is only by production on a huge scale that they can be sold at such low prices. Morris cars are a striking example of cars of excellent quality produced en masse, and therefore at low price, by an enterprising firm. They are deservedly popular among medical men. The new reduced prices enable a two-seater Morris-Cowley to be purchased for £175, whereas the most expensive body—the saloon—on a Morris-Oxford chassis can be acquired for £385, including front wheel brakes. Between these two figures any type of car can be purchased and a full insurance (general accident policy) for a year is given in addition to all desirable accessories.

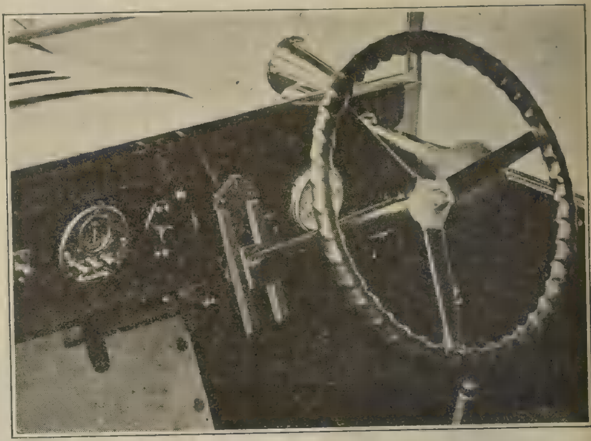
Wolseley Motors (Stand No. 168).—Examples are shown of the 11/22 (late 10 h.p.), the 16/35 (late 14 h.p.), and 24/55 (late 20 h.p.). Prices are slightly reduced from last year, and in addition there is an exceedingly generous accessory equipment. The chassis exhibited vary only slightly in detail from those shown last year. The Wolseley 20 is an excellent proposition.

G.W.K. Cars (Stand No. 37).—To the medical profession this car must prove of interest, as they are asked from time to time whether it is possible, or safe, for more or less disabled persons to drive. In this car, specially constructed for the disabled, there is no gear-box, and the speed is varied by the movement of a disc composed of two outer rings of fibre and a centre ring of cork, all three being clamped together in the usual manner, with side-plates and bolts, and at right-angles across the face of another disc. In the model exhibited pedals are absent, both clutch and foot-brake being operated by pulling the steering column downwards (see Fig. 4). Prices vary from £200 for the two-seater, to £225 for the four-seater. Details of the mechanism of this car were given in THE LANCET last April,[1] and I may venture to emphasise the valuable advice then given that a disabled individual should, in his own interests, submit to one of the standard driving tests before taking the road.

Coachwork.

Many new ideas for finishing coachwork in place of painting are now coming on the market, and a remarkably successful finish is achieved by the use of "Carmaloid" made and developed by R. I. Clark and Co., West Ham Abbey, London, E. 15. This substance is a celluloid enamel which is applied simply by pouring the material over the panels out of a spout. The coats dry quickly at normal temperature; after about 20 minutes the enamel is impervious to dust. A body finished with this preparation need never be washed, but merely rubbed with a leather. The friction of dust merely serves as a polish, since the surface is too hard to be scratched. Tar, the removal of which ruins a varnished surface, can be dissolved by a cloth soaked in petrol or benzol, because the celluloid finish is impervious to either of these tar solvents. To the medical man, whose car is almost constantly on the road, this system should make a special appeal when the need for repainting arises.[2]

FIG. 4.

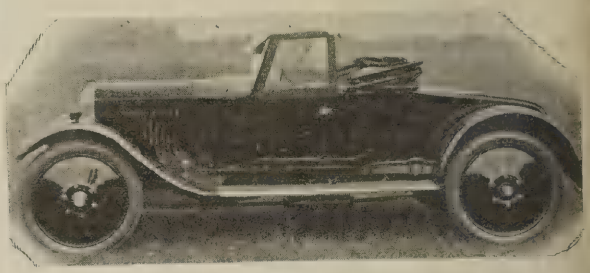


Control apparatus of G.W.K. cars fitted for disabled drivers. Note the absence of pedals, and the guide for the upward and downward movement of the steering column, which operates clutch and brake.

Offords (Stand No. 122 Coach-building Annexe).—An example of this firm's work will be seen on an 18 Armstrong-Siddeley chassis, consisting of a Coupé de Ville Landaulette. The workmanship and general finish will be found good and the price reasonable.

Mann, Egerton and Co., Ltd. (Stand No. 202 Coach-building Annexe).—A special doctor's two-seater body fitted to a 14 h.p. Vauxhall chassis is being shown. This body incorporates many features suggested by members of the medical profession, including two doors made specially wide for easy entrance and an all-metal sloping windscreen, constructed with the lower edge of the top glass panel shaped to drain water to the outside edges. The price has been kept down to £625, complete with full equipment. (See Fig. 5.)

FIG. 5.



Special doctor's 2-seater semi-coupé (Vauxhall and Mann Egerton).

Accessories.

Petrol.—All the well-known firms have stands. I am often asked as to whether there is any disadvantage in mixing petrol of different makes. In practice so long as No. 1 quality is used it does not seem to make much difference whether B.P., Shell, Pratt, or any other reliable makes are used together when this happens to be convenient, or the owner's favourite brand is not available.

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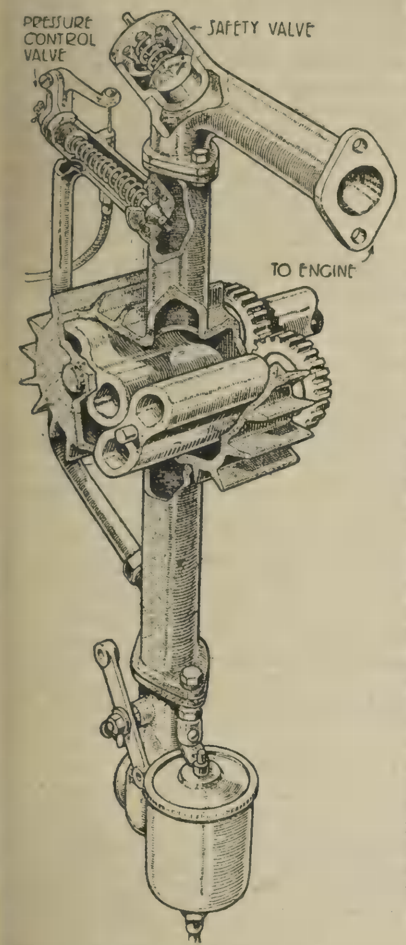
[1] 1924, i., 885.

[2] I am informed that, while no examples of this finish are on show at Olympia, demonstrations of the process will be given to any medical men by Messrs. Clark and Co. at their works.

Superchargers.—The average motorist has not hitherto been much interested in superchargers, but these devices for increasing horse-power are likely to be applied to ordinary private cars in the near future. Under present conditions cylinders are not filled with gas at fairly high speeds, nor is the spent exhaust gas entirely exhausted; thus every new charge in the cylinder is unsatisfactory as to quality, and is, moreover, diluted by undischarged exhaust-gas. A supercharger completely fills the cylinders of the engine with gas at high engine speeds with the consequent gain of much extra power. Without going too closely into technical details, supercharging involves the use of a blower (see Fig. 6) between the carburettor and the engine. This runs practically at crankshaft speed and increases the horse-power enormously. If the present method of taxation remains in use, no doubt some relief will be sought with a device of this description, for it will enable us to use smaller engines for the taxable horse-power.

FIG. 6.

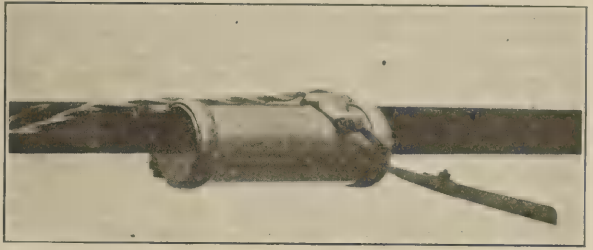


Diagrammatic view of the lay-out of an induction system incorporating a Roots blower.

Lifting Jacks.—Now that so many cars are fitted with balloon tyres it is obvious—owing to the great difference in height of the axle when the tyre is flat and when pumped up to the required pressure—that the old type of lifting jack is useless, and the buyer should therefore see that some form of double lifting jack is supplied with the equipment. There is a convenient type of jack, called the "Stevenson," which comprises two jacks permanently fitted to the chassis, one on either side, thus enabling both wheels to be lifted on either side of the car by the simple operation of turning a handle. This handle is detachable and it is only necessary to push it on to a square shaft, which is flush on the running board and protected by a rubber cap. The price of this jack system is only £6 6*s.* complete. It can be seen on the Darracq stand (No. 126).

Dunlop Rubber Co. (Stand No. 500, Gallery, Main Hall).—The bulk of our British cars are now fitted with Dunlop tyres as standard equipment. I believe this make to be one of the best at present being manufactured and the new balloon type is worth careful examination. Full information as to cost of conversion from ordinary to balloon equipment will be given by the company on application. They have issued an excellent inexpensive guide at 5*s.* It includes good, legible, and easily followed road maps, and full details of hotels and garage prices in most towns of reasonable size. A section at the end of the volume is devoted to lighting-up tables, index marks, ferries, and a short summary of the simpler side of motor-car law.

FIG. 7.

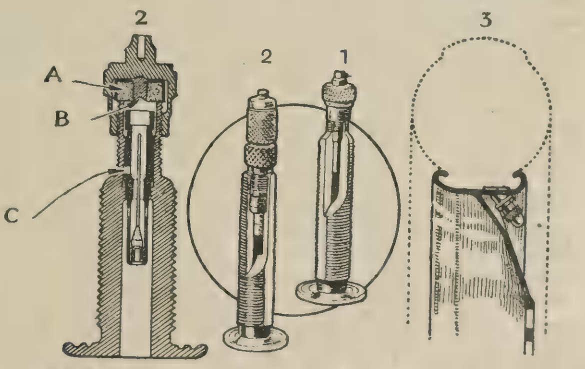


A new type of windscreen wiper working on the "solenoid" system. (Fluid Pressure Pumps, Ltd.)

Lodge Sparking Plugs (Stand No. 426) are worth examination by those unfamiliar with their robust construction. In practice they are reliable and give long service.

A new electrically driven *Windscreen Wiper*, ingenious and efficient, has been produced by Fluid Pressure Pumps, Ltd. (Stand No. 370). It is actuated on the well-known "solenoid" principle, and made in two types, both quite silent in operation. One type is actuated by a small switch which clips on to the rim of the steering wheel. Pressure on the switch button causes the squeegee to make a semicircular sweep and return automatically to the horizontal position. The second type is rather more elaborate and can be made to operate automatically at fixed intervals adjustable from 10 to 30 seconds. The first type is 22*s.* 6*d.*, and the other 32*s.* 6*d.* (see Fig. 7). An advantage of the "solenoid" system is that the current required to operate is practically negligible.

FIG. 8.

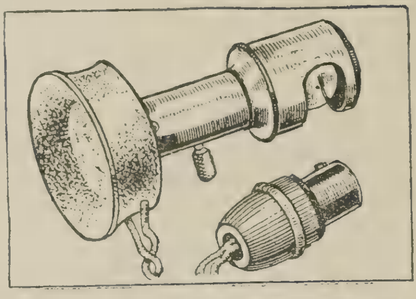


A new Michelin tyre valve. 1. Old type of valve. 2. New type of valve. 3. Shows position of valve in new steel disc wheel. A, Rubber enclosed in metal cap. B, Metal centre which takes top of plunger stem and pushes it down. C, Vent allowing air to escape when deflating tyre.

Michelin Tyre Co. (Stand No. 519).—After using the same type of tyre valve for more than 20 years, the Michelin Co. have produced and standardised a new valve, the special design of cap employed being alone responsible for retaining the air in the tube. The old rubber-headed plunger is still used, but it operates only when the tyre is being inflated. Fig. 8 shows the difference between the old (1) and new (2) type, whilst (3) gives the position of the valve in the steel disc wheel. Briefly, the valve cap contains a rubber plug enclosed in a small metal cup, and has a metal centre with a small depression in it to take the top of the plunger stem. When the tyre is fully inflated the valve cap is screwed on and the plunger, being pushed downwards to its seating, falls to the bottom of its working chamber. This type obviates many of the troubles inseparable from the older valve, such as leakage due to grit or dirt on the plunger seating or the perishing of washers. In the new type the valve cap does the bulk of the work, obviously a more satisfactory arrangement.

Guiterman and Co. (Stand No. 284) show an interesting inspection lamp. This is fitted with a suction cup at one end and can thus be stuck on to any convenient part of the car, leaving both hands free to work (Fig. 9).

Fig. 9.



Guiterman's suction cup inspection lamp.

General Notes.

The following points serve as a useful guide to present practice in chassis design: (1) Four-cylinder engines form about 75 per cent. of the total. (2) About 10 per cent. more cars are fitted with four speeds than with 3 speeds. (3) Pump and thermo-syphon system cooling are about equally popular. (4) Centre and side control are used in about equal proportions, and it should be noted that either can be operated with facility. Central changing is a little awkward perhaps, particularly on a two-seater, owing to its being practically impossible to seat three persons abreast; moreover, two rugs must be used in cold weather. On the other hand, it makes for easy entrance from doors on either side; whereas the side control is obstructive unless the body is built with wide doors. On the whole, therefore, it might seem that for the medical man central control on small or medium powered cars is the most advantageous. (5) Magneto ignition is used on 75 per cent. of the total number of cars shown. (6) As to brakes, ordinary two-wheel and four-wheel are about equally divided.

There is a tendency for *chassis frames* to be lower than heretofore, this policy being, I consider, in the right direction; it enables the coachbuilders to produce a body much nearer the ground, thus reducing wind resistance and roll on corners, and giving a lower entrance step for passengers.

Some indication is noticed towards *six-cylinder cars* with a small horse power. Doubtless in time these will become more universal, but progress is slow, the average user being a little nervous of what he thinks is the added complication of two extra cylinders.

It is noticeable that in many cars the framework of covered bodies is built of metal in place of wood, door pillars included, a light framework of wood being attached to the metal work for upholstery to be fixed to. This idea presents an interesting problem and may very likely lead to further developments in this direction owing to its strength and lightness.

Balloon Tyres and Springing.—Since most medium and smaller powered cars are now fitted with the balloon or low pressure tyre, the question of springing should be gone into carefully by the would-be purchaser. It must be remembered that to obtain the full benefit of balloon tyre comfort some form of rebound snubber or shock absorber should be fitted, particularly on the four-seater cars, for whilst absorbing the small shocks due to rough stretches of roads, these tyres, owing to their great flexibility, tend to create an excessive "up throw" of the body and springs. The cost of absorbers or snubbers varies from £5 5s. upwards according to the size of the car.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are notified: Surg. Comdrs,: A. E. Malone to *Capetown*, on recommg.; and H. A. Kellond-Knight to *Hecla*.

Surg. Lt.-Comdrs.: R. Buddle to *Vivid*, addl., for R.N. Hospl., Plymouth, as Instructor to Sick Berth Staff; N. A. H. Barlow to *Victory*, addl., for R.M. Infirmary, Eastney; and O. D. Brownfield to *Bryony*.

Surg.-Lt. D. M. Beaton to *Royal Oak*.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. E. E. Parkes is placed on the half-pay list on account of ill-health.

TERRITORIAL ARMY.

The undermentioned Lt.-Cols. to be Bt. Cols.: C. R. White, F. Whalley, C. L. Isaac, J. W. Keay, F. Darlow, R. E. Bickerton, T. B. Wolstenholme, and G. L. Thornton.

Lt.-Col. C. W. Ponder to be Bt. Col.

Maj. R. M. Wilson having attained the age limit is retd. and retains his rank.

Maj. (Prov.) O. Teichman is confirmed in his rank.

Maj. L. Ball resigns his commn. and retains the rank of Maj.

Capt. A. F. Wright (late R.A.M.C.) to be Capt.

TERRITORIAL ARMY RESERVE.

Lt.-Col. F. Hawthorn to be Bt. Col.

ROYAL AIR FORCE.

D. Magrath is granted a short service commission as a Flying Officer.

Flight Lts. R. G. J. McCullagh and C. Y. Roberts are transferred to the Reserve, Class D.2.

INDIAN MEDICAL SERVICE.

Maj. A. E. Meredith and Capt. W. E. Maxwell are confirmed in their rank.

Lt. F. H. Whyte (Prov.) to be Capt.

The King has approved the restoration to the active list from the temp. non-effective list of Maj. Abdus Sattar Khan.

The King has approved of the retirement of Lt.-Cols. W. G. Liston and J. W. Grant.

DEATHS IN THE SERVICES.

Major-General Sir Robert S. Findlay Henderson, K.C.M.G., C.B., retired Surgeon-General A.M.S., died on Oct. 5th, at the Queen Alexandra Military Hospital, at the age of 65. The son of the Rev. R. Henderson, senior chaplain, Bengal, he received his medical training at St. Mary's Hospital and at Edinburgh University, where he graduated in medicine and surgery in 1882. Two years later he entered the Army Medical Service and served in the Sudan campaign of 1885. He also served in the Burmese expedition of 1885–87, in Upper Burma against the Katchens, 1887–89, and in the Chin Lushai expedition of 1890. He was P.M.O. of the Wuntho expedition of 1891 and was mentioned in despatches, and served with the Malakand Field Force in 1897. For services in the South African war, where he was in command of field hospitals, he received the Queen's Medal, and in 1907 he was appointed secretary to Netley Hospital, becoming secretary to the Director of Medical Services in India a year later, a position which he held for four years. In 1914 he was appointed Assistant Director of Medical Services in the Quetta Division and later to the 17th Division, subsequently becoming Director-General of the New Zealand Medical Services. Sir Robert Henderson, who was an honorary physician to the King, retired in 1917 with the honorary rank of major-general, and received in the same year the C.B. He received the K.C.M.G. in 1919.

Correspondence.

"Audi alteram partem."

IS SANATORIUM TREATMENT ECONOMICALLY SOUND ?

To the Editor of THE LANCET.

SIR,—The question, Are we sure that sanatorium treatment is economically sound ? asked by "Medicus" in your issue of Oct. 4th, cannot be answered categorically. It is impossible to weigh against each other with the exactness of a laboratory experiment the results attained by two different methods of treatment. Papers published in 1921 by E. Ward[1] and n 1922 by G. Lissant Cox[2] reach different conclusions as to the relative values of sanatorium and domiciliary reatment in cases of pulmonary tuberculosis. The difficulty is to get really comparable cases, since it is nconceivable that the cases which receive sanatorium reatment are of the same class as those who refuse or are refused sanatorium treatment. Hence, until some public authority has the courage to treat a large series of cases by the two methods, assigning them alternately to one or other as they come, we shall have to depend for a judgment on less conclusive evidence.

There is ample evidence that many slight cases of uberculosis recover without treatment and without being diagnosed, but tuberculosis is a serious disease when its symptoms really obtrude themselves and render the patient unfit for his work. In this stage the following conditions are generally essential for uccessful treatment: (*a*) Skilled medical control, which includes nursing; (*b*) good material conditions n respect of accommodation and food; (*c*) an tmosphere or environment which favourably affects he patient's psychology; and (*d*) the coöperation of he patient himself. If all these were present in the ome treatment of tuberculosis, the results would, oubtless, be little different from those obtained in anatoria. But are they ? While it is true that the deas underlying sanatorium treatment have to some xtent permeated general medicine, and are appreiated by the public and by the press to a much reater extent than they were even ten years ago, et it is no disrespect to our professional brethren ngaged in general practice to say that there are very w of them who have more than a nodding acquainance with the principles of the hygienic-dietetic reatment as carried out in the ordinary well-run anatorium. The exceptions are, in most cases, ormer patients or former medical officers of sanatoria. real knowledge of the behaviour of the body emperature in tuberculosis and of the influence of xercise on the course of the disease is seldom acquired n the medical schools or, indeed, outside the anatorium.

It is readily admitted that in the past men have not frequently been appointed to take charge of sanatoria tuberculosis dispensaries who had no special nowledge of tuberculosis, and that even now one or wo county councils believe they can get efficient spensary service from officers who do also routine edical inspection of school-children and function as perts in infant welfare, and possibly also in venereal seases and general public health. But in these days uch lapses are very rare, and there are very few cases here the sanatorium superintendent or the tuberulosis officer cannot be ranked as a specialist in his bject.

Again, it is seldom that a working-class patient can cure at home the accommodation and the food hich he ought to have. While exposing his family to tra risk of infection, he diminishes their resistance requiring a share of their food. As important as y factor for his speedy recovery is the environment. his own home the patient is regarded by himself nd by others as a diseased person among healthy persons, constantly reminded of his affliction, requiring special consideration and subject to all the anxieties and annoyances of a household struggling along with diminished resources. In the sanatorium, on the other hand, he enters a new atmosphere where all are in the same boat as himself, and where everything is specifically directed, and not improvised, for the treatment of his ailment. His domestic troubles are dimmed by the want of contact with them, his mind is kept occupied by a well-ordered routine with things other than his own ill-health and his family worries. Sanatorium patients do often worry about their financial and family affairs, but nevertheless make progress towards recovery, and would in all probability worry considerably more if they were actually living at home. It is true that there are a few cases who feel the separation from their families so keenly, or are from their temperament so miserable in the sanatorium, that they may make a better recovery at home. Such cases are undoubtedly exceptional. Ordinarily the sanatorium patient is more cheerful, and is animated with a better hope of recovery than the patient treated at home. This may not be true in those institutions where advanced and even dying cases are treated alongside curable cases. The spirit of hope that is so important for the recovery of the latter is transferred to the former, for whom it can avail nothing except to add temporarily to their peace of mind. Medical officers of health lay considerable stress on the educational value of sanatorium treatment, as an asset in protecting the rest of the community, even if it did nothing to help the patient. Thus the sanatorium does considerably more than work for the individual.

It is sometimes argued that the money spent on the institutional treatment of pulmonary cases could be used to much better advantage in raising the standard of living of the patient and his family while his ill-health is being treated in his own home. If we assume, as is reasonable, that each case receives an average of four months of sanatorium treatment costing £3 a week, the cost is approximately £50. How far will such a sum, added to other assistance which he might in any case receive from public funds after leaving the sanatorium, go in providing maintenance or extra nourishment, better housing conditions, medical attendance, and drugs for a person whose incapacity for work is likely to last for at least a year, and whose partial disability ending either in recovery or in death has been estimated to last on the average over three years from the time of first requiring treatment ? I am, Sir, yours faithfully,

JAMES WATT.

King George V. Sanatorium, Godalming, Surrey,
Oct. 13th, 1924.

ANTIMONY TARTRATE IN BILHARZIA.

To the Editor of THE LANCET.

SIR,—Judging from the published reports of those who have used the sodium salt of antimony tartrate in the treatment of bilharzia disease in Africa, it is necessary to use from 25 to 30 gr. to effect a permanent cure. By using the potassium salt, I have found that a cure can be effected in the vast majority of cases in Natal by using half this total dose. Further than that, I have shown that, where the drug is dissolved in not more than 3 c.cm. of boiling saline and doses of gr. ½ to 1½ are employed for a juvenile adult, a cure is obtained practically without toxic effect throughout the series of injections. Where there is extensive destruction of the liver substance, as is so common in patients infected with *Schistosoma japonicum* and is occasionally met with in the African varieties of bilharzia disease, it is most desirable that the smallest possible total dose of antimony should be employed and distilled water avoided; for this reason, I consider that the substitution of the sodium for the potassium salt as originally used at Khartoum by Dr. J. B. Christopherson is unwarranted, and would strongly urge upon those practitioners who are called upon to treat schistosomiasis in its various forms with antimony to confine themselves to the use of the potassium salt dissolved in saline.

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[1] Ward: THE LANCET, March 12th and June 25th, 1921.
[2] Lissant Cox: Brit. Jour. Tuberc., January, 1923.

I am, Sir, yours faithfully,
F. G. CAWSTON, M.D.

Durban, Natal, Sept. 13th, 1924.

FACT AND THEORY IN RADIO-THERAPY.

To the Editor of THE LANCET.

SIR,—Prof. Russ takes me to task for certain statements in my article on Some Principles of Treatment in the Radio-therapeutics of Cancer (THE LANCET, Sept. 27th).

1. Referring to a former denial on my part that ultra-violet rays could benefit deep-seated diseases, "because they had practically no penetration," I quoted instances to show that such benefit was now clinically proved, and added that "we should beware of denying clinical facts because of physical theories." Prof. Russ says: "I do not think we should blame theory here; *judgment upon the physical facts has been wrong* (italics mine), but even the facts were right." This statement appears to me somewhat lacking in lucidity, but I take it to mean that the absence of power on the part of ultra-violet rays to penetrate the body tissues remains undisputed. Quite so. It is the "judgment upon the physical facts" which has been wrong. Now, it may be due to my lack of clear thinking if "judgment upon physical facts" appears to be own brother to a "physical theory"; but so it seems to me. A theory is the outcome of reasoning, and in the case of exophthalmic goitre the syllogism was as follows: (*a*) Unless a radiation penetrates the skin it can have no effect on underlying organs; (*b*) ultra-violet rays cannot penetrate the skin—the thyroid is covered by the skin; (*c*) therefore ultra-violet rays cannot affect this organ. The major premiss was at fault, because it rested on physics without physiology. It was a flagrant example of the denial of clinical fact because of physical theory. I singled it out, because I had myself been guilty, but, unfortunately, medical history abounds with such examples.

2. I am accused of opposing a theory to a fact in the matter of acquired immunity on the part of tumours against X rays. Prof. Russ says: "He is discussing the well-known clinical fact that growths become apparently resistant to repeated application of X rays. Obviously, this may be due either to the malignant cells or to the tissues of the host, an alternative not easily decided upon in the human body. *He then refers to the fact that when animal tumours are removed from the body, and given repeated doses of X rays, the same phenomenon appears*" (italics mine). Now, while I was quite familiar with Prof. Russ's work on these lines (*Brit. Jour. Radiology*, August, 1924), I purposely avoided discussing it in my paper for the very reason that it was concerned with dosage outside the body, a procedure which has no clinical analogue. If Prof. Russ can show me the reference italicised either on page 638 or elsewhere in my paper I shall be greatly surprised. I think his enthusiasm has led him to assume some such reference must be there! I confined myself—or believe I confined myself—to clinical considerations alone. I do not for a moment deny the possibility that acquired immunity may be transmitted; but the view that, in the human subject, favourable mutations among the cancer cells may play a part is not without supporting evidence. For it is well known that when the remains of irradiated growths are examined microscopically, intact cancer cells are often found here and there amongst the corpus of their companions. The precise nature of the immunity was not, however, of importance to my argument, as I was rather concerned to show that a general failure of body resistance was of more importance in determining the final break-up than any acquired immunity on the part of the original tumour mass.

3. On page 635 I say: "The wave-length most suitable for any given type of growth must be found by clinical observation, and cannot be deduced a priori from any physical considerations." This statement was made in connexion with the warning not to pit physical theories against clinical facts, and was not intended to refer to laboratory experiments upon living animals. I follow such experiments with the greatest possible interest, and look to them to furnish new ideas which may be tried out on actual patients. If Prof. Russ will look through my writings for the past ten years, he will find very few of them (not excepting this latest paper) in which his work is not referred to, and always with appreciation.

But, when all this is admitted, one cannot "lift" the results obtained for experiments on animals and apply them forthwith to the human subject. Many disappointments have come from the attempt. And if this is true for experimental work done in the body, how much more is it true with regard to work done out of the body! The final experiment must always be clinical—i.e., upon the body of a human being.

I am, Sir, yours faithfully,
F. HERNAMAN-JOHNSON.

Harley-street, W., Oct. 11th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—I find it difficult to follow the arguments of Dr. Barwise which would make it appear that "Codlin's the friend, not Short," and that under a curious disguise he is only the true friend of the dental profession. I for one find myself lacking in a proper sense of gratitude. The real issue is not the efficiency of the dental dressers employed by the Derbyshire County Council, but whether unqualified and partly-trained individuals should be allowed to perform any operations in the mouth. The examining bodies demand a course of not less than four years training at a general and dental hospital for a dental student. The examinations are not easy and cover a wide field. If such strenuous training is considered necessary before a dentist is allowed to practise, it seems to me that the relatively slight training proposed by Dr. Barwise is not sufficient to allow such individuals to carry out dental treatment skilfully and efficiently. The Dental Board regards a proper training as so essential that if any dentist allowed a dental dresser to carry out operations of the nature advocated by Dr. Barwise, in his own practice, he would undoubtedly be regarded as committing the offence of "covering" and would be liable to have his name erased from the Dental Register. Dr. Barwise's attitude is strongly reminiscent of the newly-qualified doctor who knew enough to treat children!

Dr. Barwise complains that I have not inspected the work done by his dental dressers, but I am not debarred from criticising his proposals, for the principle involved is of great importance and far transcends the question of how these particular individuals perform their work. My experience as a dental surgeon both to a dental hospital and a children's hospital has convinced me that the dental treatment of children is the most difficult work which a dentist has to perform. The newly-qualified dentist is but a tyro in this branch of dentistry. How much less efficient those whose training is of the limited characte suggested by Dr. Barwise. What would the attitud of the medical profession be toward a proposal tha minor medical work should be carried out by partly trained individuals? I am certain that doctors woul oppose any such proposal, even to cope with condition for which the number of qualified practitioners wa insufficient. It would be rightly said that there is n minor medicine which is always minor and therefor within the competence of an unqualified person At any time some unexpected difficulty may aris calling for the highest skill of the medical man. Th same argument applies to dental operations by partly trained dressers and it is for this reason that I am opposed to Dr. Barwise's proposals.

With regard to the contention that the number o dentists is insufficient for the work, a primary argu ment for the employment of dental dressers, this cannot possibly be sustained. For a recent appointment as full-time dentist at Dewsbury there were 73 applicants. This is not exceptional and disposes effectively of the statement that there is a shortage of dentists. I am Sir, yours faithfully,

Wimpole-street, W., Oct. 11th, 1924. A. T. PITTS.

REPRESSION OF PAINFUL MEMORIES.

To the Editor of THE LANCET.

SIR,—Dr. Hugh Wingfield's letter, published in THE LANCET of Oct. 4th, gives an interesting account of the origin of repressed memories with which I am in the main in agreement. But the process of forgetting would seem to be Nature's remedy for painful experiences, and the majority of repressed memories of childhood surely remain harmless. Nearly every child, I suppose, has been smacked at some time and forgotten the smacking which leads to no bad after-effects.

What is it, then, that produces the pathological repressed memory which in after life gives rise to the distressing symptoms we find so often in our nervous patients? I have found in nearly every case that the emotional disturbance is out of all proportion to the physical injury which generally has occurred. A sense of injustice is often an important symptom, followed, it may be, by a desire for revenge or protection against a similar experience in the future; this n turn leads to obsessional acts which the patient s quite unable to explain. When the memory is revived by hypnotism the acts and emotions are explained correctly by the patient to himself and the adult power of reasoning takes command; the cause of the distressing emotions is understood, and his, I believe, to be the reason why the recovery of he repressed memory cures the symptoms. In future, should anything occur to recall his former experience the emotion will still arise, but with it the memory and the explanation which will in turn subside, until in most cases the symptoms are no longer evident, or are so slight that they can be controlled.

I do not agree that "recalled painful memories do us no harm." They do not, of course, produce the distressful symptoms of a repressed memory, but which of us can say that memories of the late war do not affect us adversely? So much so that most people are trying to forget it. In dealing with patients, too, the physician has to tread delicately, for although in the revival of repressed memories by hypnotism or other means we possess a very valuable form of treatment which performs an undoubted cure in certain cases, it is well to remember, as Freud says n his Introductory Lectures on Psycho-Analysis, translated by Mrs. Riviere (page 320): "Although it may be said of every neurotic that he has taken flight into illness,' it must be admitted that in many cases this flight is fully justified, and the physician who has perceived this state of things will silently and considerately retire."

I am, Sir, yours faithfully,
PERCIVAL S. CONNELLAN.
Bloomsbury Dispensary, W.C., Oct. 6th, 1924.

GAS-AND-OXYGEN ANÆSTHESIA IN ILL PATIENTS.

To the Editor of THE LANCET.

SIR,—Dr. W. B. Howell's article in your issue of Oct. 11th is valuable to anæsthetists not only because t confirms our present knowledge of the power of adrenalin to restore the heart-beat, and of the echnique of its injection, but also because it draws attention in a vivid manner to the difficulties and danger of nitrous oxide and oxygen in anæsthetising patients who are seriously ill. It may even strengthen he conviction of some that nitrous oxide and oxygen, although in theory the ideal anæsthetic for the hocked, the exhausted, and the toxæmic patient, is often the most dangerous of all general anæsthetics in actual practice.

The reasons for this conviction are not far to seek: they may be briefly stated by saying that nitrous oxide and oxygen produces indifferent muscular relaxation in the presence of sufficient oxygen to maintain complete oxygenation of the blood and that, in consequence, anæsthesia with this agent is nearly always accompanied by a slight degree of anoxæmia; more particularly if the abdomen is the seat of operation, or an operation is being performed which demands a quiet and fairly well-relaxed subject. I feel almost inclined, from experience and observation, to go even further and to say that I do not believe that anæsthesia can be obtained and maintained with this anæsthetic in the human subject without a slight degree of shortage of oxygen, judging not by the colour of the face but by the colour of the blood in the wound. However this may be, it is certain that the heart and central nervous system of a healthy patient can withstand this handicap for a considerable time, but that a long-continued anoxæmia, even if of slight degree, may prove too much for a very ill patient, or a patient who is disabled by a cardio-vascular, bronchial, or pulmonary lesion. It is wiser to add a little ether, which by deepening anæsthesia allows the use of an excess of oxygen, or to employ local anæsthesia in conjunction with nitrous oxide and oxygen, than to supplement the action of this gas by anoxæmia.

Prolonged nitrous oxide-oxygen anæsthesia suffers from another disadvantage in cases of active pulmonary tuberculosis. Rest in the recumbent posture is still part of the accepted treatment of this stage of the disease, and the resumption of physical activity is slow and gradual. If this state of rest is contrasted with the state of increased pulmonary ventilation, which exists during this anæsthesia, the question at once arises whether some other method of anæsthesia, local or general, is not advisable. Spinal analgesia is indicated in some of these cases, and in others I believe that ethylene, judging by the experience of the Mayo Clinic (*Brit. Jour. of Anæsth.*, II., i., 13) and a limited trial of this gas at Guy's, will be found to offer a solution of the problem.

Dr. Howell notes the "long period of unconsciousness" after resuscitation of the heart and quotes the unique case reported by Mr. Mollison. It is important to put on record the fact, which Mr. Mollison very kindly authorises me to use, that the mental development of this boy was very backward for at least two years afterwards. It is another proof of the grave damage which is done to the nervous system by diminishing or cutting off its supply of oxygen.

I am, Sir, yours faithfully,
Regent's Park, Oct. 11th. FRANCIS E. SHIPWAY.

FUR DERMATITIS.

To the Editor of THE LANCET.

SIR,—In a recent issue (THE LANCET, Sept. 6th, p. 505) attention was called to the report on this subject issued by the Ministry of Health. From the pathological and social points of view this report seems to me to require further comment. While describing various products of para- and metaphenylendiamin, to which the symptoms have been attributed, it omits reference to the important point that it is not a difficult procedure actually to test either a fur or a chemical product in order to decide whether it is or is not, in fact, irritating to human skin. I have already described (*Medical Press and Circular*, March 26th, 1924) the procedure and the results which may be obtained. As the report of the Ministry stands, no evidence other than clinical association is recorded or referred to in the bibliography.

There is also confusion on an important point. The report attributes dermatitis to the presence in the fur of incompletely oxidised products of para- or metaphenylendiamin. I showed, however, in the paper referred to above, that when either of these substances was treated with an oxidising agent, two products were formed, one soluble and irritating, and the other insoluble and harmless, the latter being "Bandrowsky's base." and that it was not possible to convert the former into the latter by further oxidation. All that is required is that the fur should be thoroughly washed with water. I am informed that in the case of the furs now on sale special care has been taken to eliminate this danger. It would be a pity, therefore, if as a consequence of the alarm that this report has caused in the minds of the laity, as evidenced by the comments in the daily press, those people who buy dyed rabbit fur should be unjustifiably deprived of a valuable source of warmth. In the Ministry's report only 1000 cases were recorded up to July, 1923, and as 14,000,000 dyed coney skins were consumed in this country in the making of fur garments during the period covered by the report, it follows that the risk is infinitesimal. In addition, a large number of fur garments were imported in a ready-made state. It is unfortunate that the report does not mention this.

Inasmuch as the family doctor is not infrequently consulted about the risk of disease from the wearing of fur, it is as well that these facts should be brought to the notice of the profession. Fur dermatitis is quite a definite disease with a specific cause, and it should not be assumed that other lesions, such as seborrhœa, occurring in the wearer of a fur garment are necessarily cases of fur dermatitis.

I am, Sir, yours faithfully,
A. KNYVETT GORDON, M.B., B.C., B.A. Camb.
Bedford-square, W.C., Oct. 13th, 1924.

THE TOXÆMIAS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—Will you permit us to reply, as briefly as possible, to the strictures passed by your reviewer (THE LANCET, Oct. 4th, p. 701) on our small volume dealing with the above subject? He appears to object strongly to the terms "pre-eclampsia" and "nephritic" toxæmia, and indeed to any attempt to differentiate the two conditions. To deal adequately with the subject some rudimentary knowledge of the American literature is unfortunately necessary, since most modern investigations of the toxæmias are the product of American clinics. With such knowledge, his assertion that we have done a disservice to medicine "by endeavouring to introduce a new title" for the group which we label "nephritic toxæmia" becomes preposterous. The term has been current in American text-books for many years. It is employed by such an acknowledged authority on Obstetrics as Whitridge Williams in his well-known text-book (1917, 1923), and among other writers on the subject by De Lee (1918) and Slemons (1918). We cannot, therefore, plead guilty to introducing this, to him, offensive term. For the use of the word "pre-eclampsia" we can again refer him to the same authorities and assure him that in America the term has attained a wide currency. We have taken special care to point out that the pre-eclamptic condition does not invariably terminate in eclamptic convulsions, though such care hardly seemed necessary in view of the generally accepted meaning of the term. The use of the term pre-eclampsia in America has led to neither of the mischievous, but diametrically opposite, results which he fears may follow its employment in this country. If he objects to any attempt to differentiate by modern methods the conditions which may produce albuminuria in pregnancy, we can only reply that after devoting some attention to the subject we have come to the conclusion that such differentiation serves a useful purpose both in treatment and prognosis. Our preface will show that we are fully prepared to revise our views, but such revision will be the result of fuller knowledge of the subject, rather than of unsupported assertions or the *obiter dicta* of "obstetricians of 20 years ago."

We will not trespass on your valuable space by any discussion of the question of pernicious vomiting. The matter is largely one of definition, and the definition of the disease which we have given was intended to rule out the so-called neurotic vomiting. In classifying raised blood pressure and urinary changes as symptoms we are in unrepentant, though possibly erroneous, agreement with the well-known text-book of the late Sir William Osler. A slight knowledge of the etymology of the term suffices, however, to show its wide applicability.

We are, Sir, yours faithfully,
O. L. V. DE WESSELOW.
J. M. WYATT.
Oct. 10th, 1924.

*** We welcome warmly any attempt to differentiate between eclampsia and nephritis; but we fear that by encouraging the use of vague titles the authors may perpetuate that lack of precision in diagnosis which at present leads to disaster in some cases and the unnecessary termination of pregnancy in others. Many practitioners have never realised that a group of cases of albuminuria in pregnancy are merely due to nephritis lit up afresh. The authors' investigations have done much to illuminate this fact; their chosen nomenclature threatens to obscure it.—ED. L.

Obituary.

GEORGE ENSIGN BUSHNELL, M.D. YALE,

COLONEL, MEDICAL CORPS, U.S. ARMY (RET.).

IN the passing of Colonel George Bushnell, the select band of workers which, following in the footsteps of Trudeau, has shed lustre upon American medical science by the study of tuberculosis loses one of its most distinguished members. Bushnell graduated at Yale in 1876 and took his M.D. at that University in 1880, entering the army in 1881. After a period of service in various frontier posts and some administrative work in the Surgeon-General's office at Washington during the Spanish-American War, his career was interrupted by an event which might well have restricted or prevented the development of his professional activities. He was stricken with pulmonary tuberculosis in 1900. But in the case of Bushnell this disability appears to have given just that direction and guidance which was destined to lead him on to further distinction and utility. In 1903 he assumed duty as Commanding Officer of the Army Sanatorium at Fort Bayard, and started that intensive study of tuberculosis which was to place him in the front rank of his profession. This appointment led to one of still greater importance, for in 1917 he was transferred, once more, to the Surgeon-General's office and placed in charge of the section of tuberculosis, a post which he held through the strenuous time of America's preparation for, entry into, and demobilisation after the European war. Colonel Bushnell's most important contribution to medical science is his work, "A Study in the Epidemiology of Tuberculosis, with special reference to Tuberculosis in the Tropics and of the Negro Race."[1] This book deserves to become one of the classics on epidemiology, since it brings the weight of its author's knowledge and experience to support a view of disease which, especially important in tuberculosis, has, at the same time, a wide bearing upon bacterial dissemination in general and the response of man and animals to the infective elements of their environment. Unlike most tuberculosis workers, Bushnell had had to do not merely with the disease as it is seen in civilised communities, but also in its manifestations in the virgin soil of American Indians and in the relatively non-resistant negroes of the Southern States. This opportunity was not lost upon him. To his prepared mind, the contrast between the clinical and epidemiological picture under these varying conditions carried its true lesson.

In the book above quoted Bushnell wrote: "We cannot comprehend how a general tuberculization 'influences the dissemination' and progress of tuberculous disease until we know how communities and individuals fare who have not had previous acquaintance with the tubercle bacillus." He recog- ised to the full the importance of previous contact vith, and infection by, the tubercle bacillus in raising he resistance against reinfection and in modifying he course of the disease when it becomes developed o the threshold of clinical manifestation. Physical igns, for him, assumed their proper character as henomena of resistance. "Râles," he says, "constiute the auscultatory evidence of inflammatory eaction to the poisons of the tubercle bacillus. . . . hey are the best evidence that the lesion is resisting ts foe." In his capacity as chief of the tuberculosis ection at Washington, Bushnell was able to focus is previous observations on tuberculosis so as to lluminate the problem of this disease as affecting an rmy in the field. A notable paper from his pen on he subject of Tuberculosis Epidemiology in the Vorld War appeared in the *Military Surgeon* of Tovember, 1922. Here he pointed out that, so far s concerns European or American troops, "the xperience of the best clinicians has led them to elieve that tuberculosis is not disseminated under the onditions of army life. . . . Those who will break own under the conditions of military service are, in ery large measure, those who bring their tuberulosis with them into the service."

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[1] New York: William Wood and Company. 1920.

These brief quotations suffice to show that Bushnell as an original and independent thinker, and hat his studies on epidemiology had led him, ndependently, to the same conclusions as had een reached under similar conditions by several uropean workers such as Metchnikov, Calmette, nd Sanarelli.

Those who had the privilege of meeting Colonel ushnell when, though weary from a life of work and udy and feeble from a long struggle with disease, he ttended the International Conference on Tuberulosis in London in 1921, will recollect the quiet, elf-effacing courtesy of his manner, the sudden ash of interest as some point of epidemiological nportance emerged in the discussion, the keen, ighly-trained mind that was evident when he spoke pon the disease which had formed his life-study. is contributions to our knowledge of tuberculosis will ve.

IR CHARLES CAMERON, BART., M.D., M.CH., LL.D. DUB.

Sir Charles Cameron, formerly Member of Parliaent for Glasgow, who died on Oct. 2nd at the age 82, was the son of John Cameron, a newspaper roprietor of Glasgow and Dublin. Born in 1841, e was educated at Madras College, St. Andrews, d later entered Trinity College, Dublin, where he as senior moderator and gold medallist in 1862, d obtained the first place in the M.B. and M.Ch. aminations in the same year. After doing postaduate work in Paris, Berlin, and Vienna, he decided enter the ranks of journalism, and became in 1864 litor of the *North British Daily Mail*, a Glasgow riodical, of which his father was part proprietor. he following year he obtained the degrees of M.A. d M.D. Dub., and received the LL.D. in 1870. his capacity as editor he worked for ten years, and as an assiduous student of social reform. He soon on for himself a name in the political world in the est of Scotland as an advanced Liberal, and when stood for Parliament in 1874 he was returned at e head of the poll for the undivided constituency Glasgow, which then returned three Members. t the General Election of 1880 he was again returned, d after the city was divided into separate constiencies he was elected in 1885 for the College Division, hich he represented for ten years. He lost his at in 1895, but from 1897 to 1900, when he retired the General Election, he represented the Bridgeton ivision. His political activities included the placing no fewer than nine separate Acts of Parliament the Statute Book, among them the adoption the sixpenny telegram, the passing of the Inebriates cts, the Acts abolishing imprisonment for debt in Scotland, for conferring the municipal franchise on women in Scotland, and for various reforms in the Scottish licensing laws.

In 1893, the year in which he was created a baronet for his able Parliamentary work, he was appointed chairman of the departmental committee on the coastwise transit of cattle; in 1894 he was chairman of the departmental committee on habitual offenders in Scotland, and in 1895 served on the Royal Commission on the liquor licensing laws.

Sir Charles Cameron was the author of a number of pamphlets on medical, social, and political subjects, vaccination and the prevention of cholera being among them. In 1881 he was president of the Health Section of the Social Science Congress, and at the annual meeting of the British Medical Association at Belfast in 1884 presided over the Section of Public Health, taking for his presidential address the subject of the cholera microbe and how to meet it. This address evoked much interest, and was afterwards published in pamphlet form. A justice of the peace and a deputy lieutenant of the county and city of Glasgow, Sir Charles Cameron, when he retired from active Parliamentary work, was presented by his many friends and admirers with his portrait as a recognition of his high personal character and his services to the city of Glasgow. He married first, in 1869, Frances Caroline Macauley, who died in 1899, leaving one daughter; and secondly, in 1900, Blanche, daughter of Arthur Perman, of Stoke Newington, who survives him with one daughter and a son, born in 1903, who succeeds to the baronetcy.

EDGAR REID, M.R.C.S. ENG.

Dr. Edgar Reid, honorary gynæcologist to the Swansea Hospital, died at his residence in Swansea on Sept. 19th as a result of septic infection of the finger after performing an operation about ten days previously. He was 59 years of age and was born in Swansea. After qualifying at Guy's Hospital he returned to Swansea to join the late Dr. H. A. Latimer in general practice. When the latter retired Dr. Reid gave up general work and specialised in obstetrics and gynæcology and was in charge of that department at the Swansea Hospital. He was also a consultant of the Aberavon and Maesteg Hospitals. During the war he was on the staff of the 3rd Western Hospital at Cardiff. A colleague writes: "He was undoubtedly and deservedly the most popular member of the medical profession in West Wales. While at Guy's he was captain of the cricket team and also played football for the hospital. Later he played for Glamorgan county at cricket and for Swansea at football. As a bat and cover-point he has never been excelled in South Wales. The present generation will remember him best as a golfer, and on two occasions he was runner-up of the semi-final Welsh golf championship. He was the kindest of men and a loyal friend." Dr. Reid leaves a widow and a daughter. His only son was killed in action in France in 1917.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 4TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 52; scarlet fever, 2040; diphtheria, 1007; enteric fever, 137; pneumonia, 533; puerperal fever, 35; cerebro-spinal fever, 7; acute poliomyelitis, 32; acute polio-encephalitis, 3; encephalitis lethargica, 52; typhus fever, 1; continued fever, 3; dysentery, 3; ophthalmia neonatorum, 110. There were no cases of cholera or plague notified during the week. The case of typhus fever was notified (in error) from Bethnal Green (see p. 817).

Deaths.—In the aggregate of great towns, including London, there were 5 deaths from enteric fever, none from small-pox, 8 from scarlet fever, 30 from diphtheria, 12 from measles, 25 from influenza. In London itself the diphtheria deaths numbered 18, and the deaths from infantile diarrhœa 28.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Defeat of Government and Dissolution.

ON Wednesday, Oct. 8th, the Government were defeated by 364 votes to 198 on a Liberal amendment to a vote of censure moved by the Conservatives. The amendment called for the appointment of a Select Committee of the House of Commons to inquire into the withdrawal of the prosecution at the instance of Sir **PATRICK HASTINGS**, the Attorney-General, of Mr. J. R. **CAMPBELL**, the acting editor of the Communist newspaper the *Workers' Weekly*, for publishing an article inciting the troops to mutiny. After the announcement of the results of the division the Prime Minister moved the adjournment of the House of Commons till the following day. On Thursday, Oct. 9th, Mr. **RAMSAY MACDONALD** announced in the House of Commons that he had advised the King to dissolve Parliament, and that the General Election would be held on Oct. 29th. After the Lords had passed the Irish Boundary Commission Bill through its remaining stages, the Royal Assent was given to that measure and Parliament was prorogued by Royal Commission.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 8TH.

Admiralty Medical Department.

Mr. **OTHO NICHOLSON** asked the Parliamentary Secretary to the Admiralty whether he was aware of the office conditions in the medical department, where one room used as a repository was badly ventilated, poorly lighted, dusty and dirty, and another room used for typing was unfit for human habitation, especially in winter months, and clerks were still working in draughty corridors; whether the department observed any quota of cubic space per person, and, if so, what it was; and whether he would investigate the grievances of the staff with a view to immediate action.—Mr. **AMMON** replied: If the Admiralty had been aware that the staff of the medical department had any complaint to make in regard to their present accommodation they would, of course, have inquired into it and have communicated with H.M. Office of Works on the subject, but in view of the hon. Member's question I will now refer the matter to my right hon. friend.

Exemption from Vaccination.

Mr. **ERNEST SIMON** asked the Minister of Health whether, in view of the strongly expressed opinion of the chief medical officer of the Ministry of Health that the public had taken dangerous advantage of the facilities for obtaining exemption from vaccination, he would reconsider the action taken by him on August 30th in rescinding the Vaccination Order of 1923 and thereby making exemption easier.—Mr. **WHEATLEY** replied: The answer is No, Sir.

Cobb Committee and Lunacy Regulations.

Mr. **ROBERT RICHARDSON** asked the Minister of Health how soon he proposed to carry into effect the recommendation of the Cobb Committee appointed by his department—viz., that Section 79 of the Lunacy Act be posted up in the waiting-rooms of public asylums so that friends as distinct from relatives of the patient might be made acquainted with the privilege, to which they were entitled by the Act, of making application to the visiting committee for the discharge of inmates, a privilege of which they had hitherto been kept in ignorance.—Mr. **WHEATLEY** replied: I would refer the hon. Member to the answer given to the hon. Member for Pontypool on March 12th, 1923, that in the opinion of the Board of Control there are serious objections to a general rule requiring that this section should be posted up in waiting-rooms. The revised rules of the Commissioners of the Board of Control, which are now awaiting statutory approval, provide that on the admission of every pauper lunatic to an institution for lunatics a notice shall be sent to all persons whose names appear as relatives or friends of the patient in the statement of particulars accompanying the reception order as to the times and conditions of visitation; and in such notice shall be embodied the substance of Section 79 of the Lunacy Act, 1890.

Compensation for Silicosis.

Lieut.-Commander **FLETCHER** asked the Home Secretary if a decision had yet been arrived at as to whether silicosis, or potter's asthma, should be scheduled under the Workmen's Compensation Act.—Mr. **HENDERSON** replied: The matter is one which would have to be dealt with by a scheme under the Workmen's Compensation (Silicosis) Acts, and I am advised that before a scheme under those Acts can be drawn up, a special inquiry involving the medical examination of a considerable number of workers in the industry must be undertaken. I am hoping to arrange for the commencement of this inquiry at an early date.

### *Maintenance of Pauper Lunatics.*

Lieut.-Commander **FLETCHER** asked the Minister of Health if he was aware that the existing grants to boards of guardians at 4*s.* per head for maintenance of pauper lunatics is totally inadequate; and if he proposed to introduce legislation to remedy this state of affairs.—Mr. **WHEATLEY**, replying, said: I cannot undertake to introduce legislation for the alteration of this grant at the present time.

THURSDAY, OCT. 9TH.

Progress of House Construction.

Captain **BOWYER** asked the Minister of Health how many houses up to date were approved; how many were under construction; and how many had been completed under the Housing Act, 1923.—Mr. **GREENWOOD** (Parliamentary Secretary to the Ministry of Health) replied: 161,441 houses have been authorised to date under the Housing, &c., Act, 1923. On Sept. 1st, the latest date for which information is available, 26,347 houses had been completed and a further 50,524 were in course of construction.

Pensioners' Allowances for Out-patient Treatment.

Mr. **TREVELYAN THOMSON** asked the Minister of Pensions whether he would revise the regulations which prevented an ex-Service man who was undergoing out-patient treatment from receiving any monetary allowance even when the disability for which he was being treated prevented him from following his normal occupation.—Mr. F. O. **ROBERTS** replied: I fear that I am not in a position to accept my hon. friend's suggestion. I may, however, state that at the present time there are on an average over 6000 men undergoing out-patient treatment who are in receipt of full allowances under Article 6 of the Royal Warrant.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations recently held the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Stuart F. Allison, Charles C. P. Anning (Trin.), Constance E. Appleton, William H. I. Bathurst, George R. H. Chell, *Robert P. Cormack, Isabelle A. Deans, Alice M. S. Dewar, Herbert S. Griffith, Thomas W. Hill, *Oswald R. Horwood (Corp. Chr.), Lionel J. Kahawita, Henry J. R. Kirkpatrick, *Frederick McKibbin, Guy Meadows, Margaret J. Rennet, Emily V. Saunders-Jacobs, John Scott, Ramtaran Sen, Robert S. Taylor (Down), Ann W. Turnbull, and John Wyllie.

* Distinguished in the application of Sanitary Science.

DIPLOMA IN HYGIENE.

*†Riad Hilmy Bestawros (non coll.), Ali Foad (non coll.), Mohamed Abdel-Hamid Gohar (non coll.), Azif Youssef Mankarius, (non coll.), *Abdel Shafi Mohammed (non coll.), ‡Mohammed Nazif (non coll.), Ismail Yousry (non coll.).

* Distinguished in the Principles of Hygiene.
† Distinguished in Bacteriology.
‡ Distinguished in the application of Sanitary Science.

UNIVERSITY OF LONDON.—The President of the Board of Education has instituted a Departmental Committee to deal with the final report of the Royal Commission on University Education in London dated March 27th, 1913, and, having regard to present circumstances and after consultation with the persons and bodies concerned, to indicate what are the principal changes now most needed in the existing constitution of the University of London and on what basis a Statutory Commission should be set up to frame new statutes for the University. The following were appointed as members of the committee by the President of the Board of Education: Lord Ernle (chairman), Sir Robert Blair, Dr. H. L. Eason, Mr. H. B. Lees-Smith, Sir Henry Miers, Prof. A. F. Pollard, Sir Amherst Selby-Bigge, Bart., Miss K. Wallas, and Mr. S. H. Wood (secretary). With reference to the appointment of this committee a communication dated Sept. 15th, 1924, was received by the Senate of the University of London from the President of the Board of Education, and on the afternoon of Oct. 9th an extraordinary meeting of the Senate was held, with Prof. E. A. Gardner in the chair, to consider the communication, when the following resolution was passed unanimously:—

> That the President of the Board of Education be respectfully reminded that the Senate was not consulted as to the reference to the Haldane Commission, nor represented upon it, nor gave evidence before it; and that, having regard to the successful progress of the University since the Report of that Commission the Senate is of opinion that such changes in the organisation of

ie University as are necessary may be more readily effected by nendments promoted by the University than by a statutory vision of the University as constituted by the Act of 1898; ut that the Senate will be prepared to furnish through its ficers and appropriate Committees any information desired by ie Departmental Committee and trusts that the various bodies id interests represented on the Senate will receive a full pportunity of putting individually or collectively before the epartmental Committee their views on the matters under nsideration.

Royal College of Surgeons of England.—A uarterly meeting of the Council was held on Oct. 9th with ir John Bland-Sutton, the President, in the chair. On ehalf of the committee on the annual report of the ouncil, a draft copy of the report to be presented to the ellows and Members at the annual meeting on Nov. 20th as submitted and the report was approved and adopted.— Ir. Anthony Richard Charles Higham, lately a student at psom College, was nominated the thirty-second Jenks cholar.—A Sir Gilbert Blane Medal was awarded to the llowing medical officer of the Royal Navy: Surg.- ieut.-Commander Harold Boultbee Padwick, D.S.O., B.A., romotion Examination, 1924.—The President reported iat the Bradshaw Lecture on Some Clinical Aspects of arcinoma of the Breast would be delivered by Mr. Raymond ohnson on Nov. 6th, at 5 P.M., and that the Thomas Vicary ecture on Sir Richard Owen as Conservator would be elivered by Sir Arthur Keith on Nov. 1[illegible]th, at 5 P.M.—The iploma of Member was conferred upon Violet Alice Quilley, oyal Free Hospital, who has complied with the necessary y-laws.

Fellowship of Medicine and Post-Graduate edical Association.—At St. Peter's Hospital begins on onday, Oct. 20th, a four weeks' special course in urology, hich comprises clinical work daily, in addition to formal ctures on the various aspects of urinary disease. Also ommencing on the 20th is a fortnight's intensive course cardiology at the National Hospital for Diseases of the eart. The Hampstead General Hospital has arranged a vo weeks' intensive course, embracing all the general and pecial departments of medicine and surgery, from Monday, ct. 27th, to Friday, Nov. 7th. The course will include emonstrations of clinical methods and cases, and formal ctures. The special combined course on children's seases, in which the following hospitals will participate, addington Green Children's Hospital, the Victoria Hospital r Children, and the Children's Clinic, will embody lectures id clinical demonstrations on medical and surgical diseases children (including special departments). There will be vo sessions daily, as specified in the syllabus, from Oct. 27th Nov. 15th. Courses for November are as follows: ermatology, St. John's Hospital for Diseases of the Skin; ynæcology, Chelsea Hospital for Women; proctology, t. Mark's Hospital; venereal disease, London Lock Hos- ital; and a general course (medicine, surgery, and gynæco- gy), Royal Waterloo Hospital. Copies of the syllabus of ich of the above courses, with further particulars, together ith the Association's Bulletin, can be obtained from the ecretary at 1, Wimpole-street, W. 1.

North-East London Post-Graduate College.— he opening lecture of the winter session will be given on uesday, Oct. 21st, at 4.30 P.M., by Colonel L. W. Harrison, .A.M.C., on the diagnosis and treatment of gonorrhœa in ie male. The lecture will be illustrated by a cinemato- aph film, and will be open to any medical practitioners ho care to attend. An opportunity will be afforded from .30 to 4.30 P.M. for a visit of inspection of the new wards, ieatre, and other recent extensions of the hospital. Those ishing to avail themselves of this opportunity are requested intimate their intention to the Dean, at the Prince of ales's General Hospital, Tottenham, N. 15, so that tea iay be provided for them.

American Social Hygiene Conference.—The ational Social Hygiene Conference for 1924 will take place Cincinnati, Ohio, on Nov. 19th to 22nd. This Conference ill mark the tenth anniversary of the founding of the merican Social Hygiene Association, and it will be held ider the joint auspices of the National Association and ie Cincinnati Social Hygiene Society. Among the speakers ill be: Miss Grace Abbott, Director, Children's Bureau, ashington, D.C.: Dr. Gordon Bates, general secretary, anadian Social Hygiene Council; Prof. Maurice A. Bigelow, eachers College, Columbia University, New York City; urgeon-General Hugh S. Cumming, United States Public ealth Service; Dr. Lee K. Frankel, chairman, National ealth Council; Dr. J. J. Heagerty, Chief of the Division Venereal Disease Control, Department of Health, Ottawa, anada: Dr. Edward L. Keyes, President, American ocial Hygiene Association; Dr. Joseph S. Lawrence, irector, Division of Venereal Diseases, New York State epartment of Health; Dr. J. E. Munger, State Director Public Health, State Board of Health, Columbus, Ohio; Dr. William F. Snow, General Director, American Social Hygiene Association; Mrs. Anna Garlin Spencer, Board of Directors, American Social Hygiene Association; Mrs. Mina C. Van Winkle, Director, Women's Bureau, Metropolitan Police Department, Washington, D.C.; together with Mrs. Clive Neville-Rolfe, O.B.E., general secretary of the National Council for Combating Venereal Diseases. London. Full information and a copy of the Conference programme may be obtained from Mr. E. F. Van Buskirk, executive secretary, Cincinnati Social Hygiene Society, 25, East 9th-street, Cincinnati, Ohio.

Guild of St. Luke.—The medical service at St. Paul's Cathedral will be held (as already announced) on Tuesday, Oct. 21st, at 7 P.M.

Institute of Hygiene.—A "children's health" series of lectures will be delivered at the Institute, 33–34, Devonshire-street, London, W. 1, on Tuesdays, at 3.30 P.M., commencing on Oct. 22nd, when Dr. James Fenton will speak on the Preservation of Health in Childhood.

Prince of Wales's Hospital.—The annual reunion dinner will be held at Pagani's Restaurant, Great Portland-street, London, W., on Friday, Oct. 24th, at 7.30 for 8 o'clock, when the chair will be taken by Mr. H. W. Carson. The secretaries are Dr. Browning Alexander, 143, Harley-street, W. 1, and Dr. S. O. Rashbrook, 7, Wellesley-road, Chiswick, W. 4.

Eugenics Education Society.—A lecture will be delivered on the Present Position of Mental Deficiency under the Act, by E. J. Lidbetter, at the rooms of the Royal Society, Burlington House, Piccadilly, on Wednesday, Oct. 22nd, at 5 P.M., Major Leonard Darwin in the chair. Members of the Eugenics Education Society and all interested in the above subject are invited to attend.

Hunterian Society.—The first dinner meeting of the society will be held at Simpson's Restaurant, 2 and 3, Bird-in-Hand Court, 77, Poultry, Cheapside, on Monday, Oct. 20th, at 7.30 P.M. After dinner, about 8.30 P.M., Mr. H. W. Carson will deliver the presidential address on the Watershed of Medical Practice. The price of the dinner is 3*s.* 6*d.* (excluding wines).

Epsom College Memorial Chapel.—In consequence of the recent builders' strike the consecration of the Memorial Chapel at Epsom College, Surrey, has been postponed from Nov. 1st, 1924, to Saturday, Feb. 21st, 1925, when the Bishop of Winchester will perform the ceremony. It is hoped that the chapel will be in full use by the middle of next month.

London School of Dermatology.—The Chesterfield lectures, constituting a systematic course in dermatology, will be given at 5 P.M. on Tuesdays and Thursdays from October to March at St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. An examination will be held at the end of the course, and the Chesterfield medal will be awarded to the best candidate, provided the required standard is reached. The syllabus and further particulars may be obtained from the Dean of the school.

St. Andrews Institute for Clinical Research, Fife.—Winter Session.—Papers dealing with Renal Efficiency will be read and discussed on Tuesday afternoons at 4 P.M. as follows: Oct. 21st, Anatomy and Embryology of the Kidney, Prof. D. Waterston; Oct. 28th and Nov. 4th, Physiology of the Kidney, Prof. P. T. Herring. Notice of the subjects of subsequent discussions will be published later. All practitioners are cordially invited to these meetings.

Mr. Warren Low was the guest of the Surgical Instrument Manufacturers' Association at their annual dinner held at the Holborn Restaurant on Oct. 10th. In acknowledging the toast for the guests he complimented British manufacturers upon the high standard of excellence reached by them in the surgical instruments they produced. He considered that British manufacturers had not only kept abreast of the times, but had presented to the world types, characteristics, and qualities which defied imitation.

Messrs. Bale, Sons and Danielsson are publishing the third Research Study in Medical History of the Wellcome Historical Medical Museum, being the Iconography of Andreas Vesalius (André Vésale), Anatomist and Physician, 1514–1564, a work which was projected to celebrate in Brussels in 1914 the fourth centenary of Vesalius's birth. The author, Mr. M. H. Spielmann, F.S.A., F.R.S.L., has added a number of notes, critical and bibliographical, and forewords are contributed by Prof. Paul Heger, Sir Arthur Keith, Prof. Harvey Cushing, and Dr. Tricot-Royer. The study is illustrated by 100 reproductions from paintings, pictures, engravings, sculpture, and medals.

West Riding Association of the Graduates of the University of Edinburgh.—The annual dinner will be held at 7.15 P.M. on Wednesday, Nov. 12th, at the Midland Hotel, Bradford. It is to be preceded by the annual general meeting at 6.30 P.M. The guest of the evening will be Prof. George M. Robertson, professor of psychiatry at the University of Edinburgh.

Dangerous Drugs.—A draft of the new regulations amending the Raw Opium Regulations, 1921, and the Dangerous Drugs Regulations, 1921 and 1923, under the Dangerous Drugs Act, 1920, has just been issued by the Secretary of State of the Home Department. The effect of the new regulations is to prohibit the diversion of consignments of raw opium and dangerous drugs passing through ports in Great Britain to destinations different from those to which the consignments were licensed from the country of export; and to modify in the case of prescriptions issued on National Health Insurance forms the requirements to be observed before a prescription for dangerous drugs is dispensed. Draft copies of the new regulations can be obtained on application to the Under Secretary of State, Home Office, Whitehall, London, S.W. 1.

Fifth International Congress of the History of Medicine.—This congress will be held at Geneva on July 20th to 25th, 1925, under the patronage of the Medical Society of Geneva. The following are the office-bearers:—President of Honour: Sir D'Arcy Power, K.B.E. (London). Vice-Presidents of Honour: Drs. P. Capparoni (Rome), D. Giordano (Venice), E. B. Krumbhaar (Philadelphia), Laignel-Lavastine (Paris), J. G. de Lint (The Hague), A. Patey (Geneva), J. D. Rolleston (London), Charles Singer (London), Mr. C. J. S. Thompson (London), and Dr. Tricot-Royer (Antwerp). President: Dr. Charles Greene Cumston (Geneva). Vice-Presidents: Dr. Ernest Wickersheimer (Strasbourg) and Prof. Andrea Corsini (Florence). General Secretaries: Drs. A. de Peyer (Geneva) and Emile Thomas (Geneva). Treasurer: Dr. Edouard Schauenberg. Subscriptions for members will be 15 Swiss francs; for Associates, 10 Swiss francs, which should be sent to the treasurer at the office of the General Secretariate, 20, rue Général Dufour, Geneva. Members will be entitled to a copy of the proceedings of the congress when published. A preliminary programme of the proceedings will be issued about Dec. 1st, and can be had upon application to the General Secretariat. A cordial invitation is extended to members of the profession interested in the subject to become members and take part in the meeting of the congress.

Donations and Bequests.—By will the late Mr. James Parr, of Higher Openshaw, Manchester, left, subject to life interests, £6000 Manchester Corporation Stock and £2600 Manchester Royal Exchange Building Stock to St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Maternity Hospital, and the Manchester Southern Hospital; and £15,000 between St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Southern Hospital, and the Manchester Maternity Hospital; £6000 to St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Southern Hospital, and the Manchester Maternity Hospital; and £6000 to Ancoats Hospital and Dispensary. Part of the residue of the estate will also be divided between St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Maternity Hospital, Ancoats Hospital and Dispensary, the Society for the Prevention of Cruelty to Animals, Manchester Branch, and Henshaw's Blind Asylum.—The late Mr. James Fieldsend, of Sheffield, left, among other bequests, by will £200 each to the Sheffield Royal Hospital, the Sheffield Royal Infirmary, the Jessop Hospital for Women, the Edgar Allen Institute, the Sheffield Children's Hospital, the Blind Institution, West-street, the Deaf and Dumb Institution, Charles-street, the Sheffield Branch of the Y.M.C.A., and the Queen Victoria Nursing Association, Sheffield. Subject to bequests totalling some £1200, and to certain life interests, he left the residue of his property equally between the Sheffield Royal Hospital, the Sheffield Royal Infirmary, the Jessop Hospital for Women, the Blind Institution, West-street, the Boys' Charity School, Sheffield, and the Girls' Charity School, Sheffield.—By the will of the late Dame Ada Elizabeth Jackson, of Ennismore-gardens, Westminster, S.W., the testatrix left £5000 to Cardiff Royal Infirmary in memory of her late husband, Charles James Jackson, with the request that a children's ward or wards shall be known as the "Sir Charles and Lady Jackson" Ward or Wards.—Miss Louisa Anne Townsend, of Alveston, Warwickshire, left £200 to the Stratford-upon-Avon Hospital, the Stratford-upon-Avon Nursing Home, and the Industrial Home, Stratford-upon-Avon.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct 21st.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship.

PATHOLOGY: at 8.30 P.M.
Presidential Address by Dr. J. A. Murray.

Wednesday, Oct. 22nd.

COMPARATIVE MEDICINE: at 5 P.M.
Presidential Address:
Mr. Frederick T. G. Hobday: The Section of Comparative Medicine.

Thursday, Oct. 23rd.

EPIDEMIOLOGY AND STATE MEDICINE: at 5.30 P.M.
Presidential Address:
Dr. John C. McVail: Progress in Preventive Medicine.

Friday, Oct. 24th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M.
(Cases at 4.30 P.M.)
Cases:
Dr. Bernard Myers: Case demonstrating the Use of Pituitary Whole Gland in Chronic Constipation.
Mr. Denis Browne and Mr. Twistington Higgins: Congenital Hypertrophy of both Lower Limbs.
Dr. F. J. Poynton: Cases of Cœliac Disease with Glycosuria.
Other cases will be shown.
Communication:
Dr. B. E. Schlesinger: The Subsequent History of a Series of Cases Operated on for Pyloric Stenosis.

THE MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
Tuesday, Oct. 21st.—8.30 P.M., Prof. Harvey Littlejohn:
(1) Judicial Hanging: A Humane Method of Execution.
(2) What is the Fatal Dose of Strychnine? Followed by a discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, W.
Thursday, Oct. 23rd.—8.15 P.M., Sir Malcolm Watson: Observations on Malaria Control with special reference to the Assam Tea Gardens, illustrated by lantern slides. This will be preceded by a demonstration on Some Malaria-carrying Mosquitoes and their Larvæ.

THE TUBERCULOSIS SOCIETY, at the House of the Society of Medical Officers of Health, 1, Upper Montague-street, Russell-square, W.C.
Friday, Oct. 17th.—8 P.M., Dr. O'Donovan: Cutaneous Tuberculosis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
Monday, Oct. 20th to Sat. Oct. 25th.—Royal Society of Medicine. Lecture arranged by the Fellowship of Medicine and open to members of the profession. Mon., 5.30 P.M., Sir StClair Thomson: Cancer of the Larynx.—Bethlem Royal Hospital, St. George's Fields, S.E. Tues., 11 A.M., Dr. Thomas Beaton: The Psychoses. Sat., 11 A.M., Dr. Porter Phillips: The Medico-legal Aspect of Insanity.—Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C. Special Intensive Course.—London School of Hygiene and Tropical Medicine, Endsleigh-gardens. Tuesday and Thursday, 2 P.M., Clinical Demonstration by Dr. G. C. Low and Dr. Manson-Bahr.—Royal Free Hospital, Gray's Inn-road, W.C. Wed., 5.15 P.M., Dr. Heald: Lecture-Demonstration, The Medicinal Uses of Ultra-Violet Light.—St. Peter's Hospital, Henrietta-street, W.C. Clinical work and Lectures daily.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
Friday, Oct. 24th.—5 P.M., Prof. Arthur Keith: Museum Demonstration: Specimens illustrating the Common Kinds of Congenital Malformation.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Tuesday, Oct. 21st.—4.30 P.M., Colonel L. W. Harrison: Cinematograph Demonstration, The Diagnosis and Treatment of Gonorrhœa in the Male.
Friday.—4.30 P.M., Dr. F. L. Provis: The Diagnosis and Treatment of Syphilis.
Daily: Medical and Surgical Clinics and Clinics in the various Special Departments, Surgical Operations, &c.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
Tuesday, Oct. 21st.—5 P.M., Dr. A. W. Barber: Bacteriology and Mycology.
Thursday.—5 P.M., Dr. H. G. Adamson: General Ætiology.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Oct. 20th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.

TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—11 A.M., Dr. Davies: Gynæcological Demonstration. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—11 A.M., Dr. Simpson: Gynæcological Wards. 12 noon, Dr. Scott Pinchin: Heart Diseases. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Throat, Nose, and Ear Operations.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

MONDAY, Oct. 20th.—(At the Shaw-street Hospital.) Dr. Gemmell: Gynæcological Diagnosis.

TUESDAY.—(At the Maternity Hospital). Dr. Willett: Antenatal Management.

WEDNESDAY.—(At the St. Paul's Hospital.) Dr. T. Stevenson: Eye Cases.

THURSDAY.—(At the St. George's Hospital.) Dr. F. Barendt: Skin Cases.

FRIDAY.—(At the Eye and Ear Infirmary.) Mr. H. E. Jones: Differential Diagnosis of Common Non-Inflammatory Eye Conditions.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, Oct. 21st.—4.15 P.M., Mr. E. D. Telford: Diverticulitis.

FRIDAY.—4.15 P.M., Prof. R. B. Wild: The Treatment of Pain.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.

(Course of Lectures on the Health of the Commonwealth.)

WEDNESDAY, Oct. 22nd.—4 P.M., Prof. W. S. Lazarus-Barlow: Cancer Propaganda.

Appointments.

CRONIN, A. J., M.B., Ch.B. Glasg., D.P.H., has been appointed Temporary Medical Inspector under the Coal Mines Act.

Edinburgh Royal Infirmary: BROWN, K. P., M.B., Ch.B., DOUGLAS, J. A., M.B., Ch.B., COCHRANE, W. A., F.R.C.S.E., SELBY, R., M.B., Ch.B., HAMILTON, A. J. C., M.B., Ch.B., MIDDLETON, D. S., M.B., Ch.B., DOTT, N., M.B., Ch.B., BROWNE, F. J., M.D., F.R.C.S.E., ANDREW, T. F., M.B., Ch.B., and ALEXANDER, G., M.B., Ch.B., Clinical Tutors and Senior Clinical Assistants (Surgical); PORTEOUS, H. B., M.B., Ch.B., and BELL, R., M.C., M.B., Ch.B., Resident House Physicians; SMITH, ANN F. G., M.B., Ch.B., Non-resident House Physician; SOO HOCK TAN, L.R.C.P. & S. Edin., and GAVIN, F. W., M.B., Ch.B., Non-resident House Surgeons; M'GREGOR, D., M.B., Ch.B., SCOTT, R. C., M.B., Ch.B., M'GARRITY, ANNABELLA, M.B., Ch.B., D.P.H., LISTER, NORA, M.B., Ch.B., M'CART, H. W. D., M.B. Tor., TOD, MARGARET C., M.B., Ch.B., RUTHERFORD, ISOBEL S., M.B., Ch.B., BRASH, JESSIE R., M.B., Ch.B., and CLARK, ELIZABETH B., M.B., Ch.B., Clinical Assistants; RUTHERFORD, A., M.B., Ch.B., B.Sc., M.R.C.P.E., Assistant Physician; SHAW, J. J. M., M.D., F.R.C.S. Edin., and BELL, F. G., M.D., F.R.C.S. Eng., Assistant Surgeons; AITKEN, R., M.D., F.R.C.P. Edin., Assistant Physician for Diseases of the Skin; and YOUNG, J., F.R.C.S. Edin., reappointed Assistant Gynæcologist.

Royal Alexandra Infirmary, Paisley: LISTER, J. A., M.B., Ch.B. Glasg., Senior House Physician; CUNNINGHAM, W., M.B., Ch.B. St. And., Assistant House Physician; CALDWELL, J., M.B., Ch.B. Glasg., and BROWN, A., M.B., Ch.B. Glasg., House Surgeons.

University of Sheffield: PLATT, R., M.D., Ch.B. Sheff., and LISTER, C. W. A., Demonstrators in Physiology.

Vacancies.

For further information refer to the advertisement columns.

Birmingham University.—Lectureship in Midwifery and Dis. of Women.

Bolton Union, Townleys Hospital, Farnworth.—Second Asst. M.O. £225.

Bradford Children's Hospital.—H.S. £100.

Bradford Royal Eye and Ear Hospital.—H.S. £120.

British Honduras.—Asst. M.O. $2430.

Burnley, Victoria Hospital.—H.S. £200.

ancer Hospital, Fulham-road, S.W.—Anæsthetist. Also H.S. at rate of £100.

entral London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Anæsth.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. for six months. £62 10*s.*

Countess of Dufferin's Fund, Women's Medical Service for India.—Two Med. Women. Rs. 550.

Dumfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Morning and Afternoon Cas. O.'s at rate £120. H.P. at rate £125. Also Res. M.O. £200.

Gesto Hospital, Edinbane, Skye.—Res. M.O. £300.

Gravesend Hospital, Kent.—Jun. H.S. £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Reg. £100.

Hull, City and County of Kingston-upon-Hull.—M.O.H. £1400.

Leeds General Infirmary, Venereal Dis. Dept.—Two Asst. M.O.'s. £500 and £250 respectively.

Liverpool, West Derby Union.—Res. Asst. M.O. £200.

Manchester Homœopathic Institution, Gorton, near Manchester.—Res. M.O. £100.

Manchester Royal Infirmary.—H.S. for Aural, Gyn., and Ophth. Depts., at rate of £50.

Manor House Hospital, Golders Green, N.W.—Sen. H.S. £200.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S. Jun. H.P. and H.S., two Cas. O.'s for six months. Each £50. Also Asst. P.

Monmouthshire County Council.—Two Asst. M.O.'s. £500.

Oswestry, Shropshire Orthopædic Hospital.—Two H.S.'s. Each £250.

Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £200.

Royal Chest Hospital, City-road, E.C.—P.

Royal Eye Hospital, St. George's Circus, S.E.—Hon. Asst. S.

Royal National Orthopædic Hospital, 234, Gt. Portland-street.—Two Hon. Asst. Surgeons.

Royal Naval Medical Service.—Surg. Lieuts. 25*s.* per day.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. S. and Hon. Gynæcologist for Out-patients.

St. Mary's Hospital, W.—Director of the Dept. of General and Special Pathology, &c. £800.

St. Thomas's Hospital.—Pathologist. £500.

Stoke-on-Trent, North Staffordshire Infirmary.—Jun. H.P. £125.

Swansea General and Eye Hospital.—H.P. £175.

Wednesbury, Borough of.—M.O.H., &c. £800.

West Ham County Borough, Dagenham Sanatorium.—Asst. Res. M.O. £350.

West London Hospital, Hammersmith-road, W.—Surg. for Dis. of Women. Dermatologist. Also Hon. Medical Radiologist.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Caterham, Surrey.

Births, Marriages, and Deaths.

BIRTHS.

BRIMBLECOMBE.—On Oct. 9th, at Pranketts, Stoke-under-Ham, Somerset, the wife of S. L. Brimblecombe, M.R.C.S., L.R.C.P., of a daughter.

BUNTING.—On Oct. 4th, at "Warders," Tonbridge, the wife of Dr. G. L. Bunting, of a daughter.

ELLIOTT.—On Oct. 5th, at Mount Ephraim-road, Tunbridge Wells, the wife of Dr. Christopher Elliott, of a son.

HAYCRAFT.—On Oct. 14th, at 31, Cathedral-road, Cardiff, the wife of John Berry Haycraft, M.C., F.R.C.S., of a daughter.

MINNITT.—On Oct. 12th, at Kremlin-drive, Stoneycroft, Liverpool, the wife of Robert James Minnitt, M.B., Ch.B., of a daughter.

MARRIAGES.

JONES—VANE TURNER.—On Oct. 8th, at St. Peter's, Eaton-square, London, George Horatio Jones, M.R.C.S., to Muriel, only daughter of Mr. and Mrs. Vane Turner, formerly of Ealing.

DEATHS.

GIBSON.—On Oct. 12th, at King's College Hospital, James Albert Gibson, M.D., D.P.H., M.B.E., of Carisbrooke, Isle of Wight, aged 59.

LOCKYER.—On Oct. 9th, at 117A, Harley-street, Minnie Marie, the beloved wife of Cuthbert Lockyer, M.D.

LYLE.—On Oct. 9th, at Castellain-road, W., Thomas Lyle, M.D., late Medical Superintendent, Wonford House, Exeter, aged 85 years.

MORGAN.—On Oct. 11th, at Connaught-square, John Hammond Morgan, C.V.O., M.A., F.R.C.S., aged 77 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

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Subscriptions not paid in advance are charged out at the published price of 1s. per copy, plus postage. Cheques and P.O.'s (crossed "Westminster Bank, Ltd., Covent Garden Branch") should be made payable to THE MANAGER, THE LANCET Offices, 423, Strand, London, W.C. 2.

Notes, Comments, and Abstracts.

CURRENT VIEWS ON INDIVIDUAL DIFFERENCES OF ABILITY.

Professor Spearman's Lecture.

The lecture on this subject, delivered by Prof. C. E. Spearman, Ph.D., F.R.S., at University College on Oct. 8th, constituted the first of a course of psychology open to the public. The problem, Prof. Spearman said, was one on which his department had been engaged for many years, during which time a number of points had been established, and these could now be collected to form a more or less complete whole. There were at the present time two doctrines on individual differences of ability: one known as the doctrine of intelligence, the other as the doctrine of faculties.

The Doctrine of Intelligence.

The first was the dominant one. Everyone referred to other people as more or less intelligent; there was a readiness to stigmatise some as bright and intelligent, others as stupid and dull. "Intelligence" was first used in the biological discussions on intelligence as contrasted with instinct. There was a tendency to regard the lower animals as possessing instinct, intelligence being reserved for man. A very important development was that which subjected intelligence to tests, especially in the work of Binet and Simon, and its application in the United States, where some two million men in the army in that country were tested from this mental standpoint. In the laboratory controlled by the lecturer, 30,000 clerks for the Civil Service had been tested.

But the views of Binet experienced a set-back at the hands of the biologists, largely owing to the difficulty of deciding precisely what was meant by intelligence and what was meant by instinct. Nor were authorities agreed as to tests, one writer declaring that a tester could not confront a person with school, the many situations in which he found himself in home, workshop, farm, and politics, calling for the exercise of the capacities which, in a summary way, were known as intelligence. A well-known German authority wrote that the problem of intelligence remained a problem still. Prof. Spearman's chief criticism of this concept of intelligence was that it was grossly equivocal. Did it include memory? Many said it did not, yet memory was included in the tests. And did it include sensory perception? Binet said it did not. Was imagination a part of it? Some denied it. Was language a part of intelligence? Some authorities regarded it as the essence of intelligence, and some considered attention as the very core of it. A similar importance was assigned to movement. A further criticism of the intelligence concept was that it was not an ultimate analysis. If a scientific treatment was aimed at, it was essential to proceed to ultimates, and not to be content with conglomerates.

Another important matter was the possibility of measuring intelligence. Of 14 authorities who met and advanced their definitions, not one used his definition in framing his tests. Some writers took up a passive attitude, being satisfied to remark that it was works which were tested, and this was all that was required. A more scientific aim was to make clear what was meant by "intelligence." One definition was "The power of adapting oneself to new situations"; but what was meant here by "adapting"? Biologically, it meant anything to preserve life; it certainly included a number of different processes. His own view was that there were certain ultimate operations, and one was the finding of relations, another was the finding of correlatives. But could these powers be measured? That was not easy. On the whole, he considered that this doctrine of intelligence was at present in a far from satisfactory state.

The Doctrine of Faculties.

The other great view on the subject was that known as the doctrine of faculties, and this also had many advocates, chiefly in Germany. That country possesses an institution at which every prospective employee on German railways undergoes psycho-testing over a period of two days, the tests covering nine faculties: power of combination, fixation of place-names and numbers, concentration, observation and carefulness, reckoning, doing many things at a time, speed in work, dexterity, speed in grasping facts. Dealing with the history of this doctrine, the lecturer said it dated back at least to Plato, for at that period it was known that the sense often led the observer astray. The ancients considered that the human being had two faculties—namely, sense and intellect. To this the faculty of memory was added, and, later still, the faculty of imagination or invention. The further one known as attention was recognised in the seventh century, and subsequently language and movement. It was easy to see, therefore, why "intelligence" was such an obscure and equivocal word. The speaker had analysed the works of 33 authors on this point; 15 of them advocated the faculty of perception, 16 that of intellect, 9 that of memory, 11 that of imagination, 10 that of attention, 6 that of movement, 3 of language, while 16 advocated fancy faculties, such as the picking out of the essential parts of a story.

A good deal of criticism had been levelled at this faculties conception, and the weighty objection urged by a German authority was, that imagination was spoken of as if it were one faculty, whereas it was well known that one person would be found to have imagination for one thing, and another person for another. The same was true of memory. This became very important from the point of view of formal training. Advocates of the teaching of mathematics claimed that the mental discipline implied was a great aid to all studies requiring concentration and reasoning; but it was found that the latter might not be as effectively employed in other studies as in mathematics, and the result of measurement of the capacity for one was not necessarily an index of capacity for another. The failure to recognise this was a weakness in the German testing system as applied to railway work.

It was important to realise that classification did not involve correlation. There were three chief causes of error here. We were misled by names; because things bore the same name, the tendency was to regard them as the same. Secondly, there was the fallacy which an ancient sophist illustrated by the contention that one ate raw meat because the meat bought yesterday was raw, and that was the meat one ate, therefore one ate raw meat. The third fallacy was to regard the act of perceiving as dissociated from the object perceived; the whole—the perception and the things perceived—must be considered together.

Summing up, Prof. Spearman said it seemed that the wisest course was to teach a person what one wanted him to be able to do efficiently, and that constituted an objection to formal training. The latter largely left matters to chance, it taught general subjects in the hope that it would enable the person taught to carry through to his special needs. Hence he thought that the people who objected to formal training were in the right; it seemed to be better to go direct to the special requirement and teach that.

"LISTON PALINGS."

Under this heading Dr. Herbert A. Smith has written to tell us of a bungalow situated somewhere on the south coast, bearing the name "Armistice," and fenced with long Liston splints with the oval foramina and notched edges uppermost. The builder is thought to be an ex-R.A.M.C. ambulance orderly.

PAINFUL CRAMPS.

To the Editor of The Lancet.

Sir,—Can any of your readers suggest a remedy for painful muscular cramps? A relative of mine who is crippled with rheumatoid arthritis is kept awake for hours every night by this distressing symptom, and there seems to be nothing that prevents its onset.

I am, Sir, yours faithfully,
E. W. Dewey.
Portsmouth, Oct. 7th, 1924.

TREATMENT OF MUCOUS COLITIS.

To the Editor of The Lancet.

Sir,—Can any of your readers tell me anything new in the treatment of mucous colitis, a complaint which is dismissed with very few words in systematic works on the practice of medicine, but which causes persons suffering from it a fair amount of pain and malaise, besides undermining the general health? The patient I have especially in my mind is a young man of healthy parentage who for some months has had mucus, casts, and occasionally a little blood passing per rectum. The sigmoidoscope and the X ray after a bismuth meal show nothing abnormal. There is sometimes a little distension and slight tenderness of the abdomen. He is keeping at work, but lacks some of his usual strength and energy physically and mentally. This is a complete contrast to his state a year ago.

I am, Sir, yours faithfully,
M. C.
Oct. 8th, 1924.

Dr. H. H. Taylor, of Hove, was on Oct. 9th elected by his colleagues on the town council to the aldermanic bench. He was first elected a member of the council in 1901. In January this year Dr. Taylor was placed on the Commission of the Peace for the borough.

THE

Harveian Oration

ON THE

DEBT OF SCIENCE TO MEDICINE.

Delivered before the Royal College of Physicians of London on St. Luke's Day, Oct. 18th,

BY ARCHIBALD E. GARROD, K.C.M.G., D.M., LL.D., F.R.C.P., F.R.S.,

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD; CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

MR. PRESIDENT AND FELLOWS OF THE COLLEGE,—More than two centuries and a half have passed since he most illustrious of our Fellows founded the Festival which we celebrate to-day, and directed hat an oration should be delivered by one of our number. Upon the long list of Harveian Orators are many names familiar wherever medicine is tudied, and amongst them those of my six most recent predecessors in my chair. I esteem it a great honour that you, Sir, should have thought me worthy to stand here to-day, and to deliver Harvey's message.

It will be my endeavour to follow the injunctions which he laid down; to commemorate the great men of the past, benefactors not only to this College but to the human race; to exhort our brethren to work together in peace and amity, and to urge them to pursue the study of our science, by methods of which he himself made such good use.

Ever since this College was founded its Fellows and Members have, generation by generation, brought heir several stones to the building of the house of medicine. Upon its Roll are names of "men in their generation famous, and in ours never to be forgotten," men of genius whose fame as discoverers and as pioneers, in medicine and in other branches of natural science, is world-wide and will never die; and of some highly distinguished in other walks of ife, great scholars, such as Linacre and Caius, poets and philosophers. Upon it, too, are names of generous benefactors to scientific education, such as John Radcliffe and Matthew Lee, and of commanding personalities, patrons of science, art or letters, such as Richard Mead, the Mecænas of his day.

But these great ones form only a small minority, and most of those upon our lists were men of lesser tature; but as teachers who handed down to heir pupils the treasures of their observation and experience, busy practitioners, keen observers, or men of varied culture few of them can have failed o add something to the sum of human knowledge. Yet many of their names recall no memory, or have attained to that most arid form of immortality, to serve as labels for malady or symptom. But, collectively, the work which they did counts for much, and those of us who are conscious that we shall eave no "footprints on the sands of time" may take courage from the thought that we too are helping to do the spade-work for some future Harvey.

On this occasion it is only fitting that special mention should be made of one born just three hundred years ago, and who, although, owing to a technical obstacle now long obsolete, he was not a Fellow of his College, held its licence; and we may associate n our celebration the names of William Harvey, he physician to King Charles and the immortal ounder of modern physiology, and Thomas Sydenham, he soldier of the Parliament, who did for clinical medicine what Harvey did for physiology, and brought it back from the realm of fancy to the bedside study of signs and symptoms. These two men, Harvey and Sydenham, each pre-eminent in his own line, were wholly unlike in their outlook, and although contemporaries are not known ever to have met.

Sydenham, at the mention of whose name the illustrious Boerhaave used to raise his hat, has been called the English Hippocrates, and by this College, on his monument, "medicus in omne ævum nobilis." Certainly no man ever had, in greater degree, the gift of conveying, in a few sentences, a vivid picture of a morbid state, and even though we may rejoice that those dear to us are no longer treated in accord with his prescription, we realise that he opened a new era of therapeutics. To him must be assigned a high place among our benefactors.

The history of medicine traces back to the birth of our race, and even beyond, for we know that the lower animals have therapeutic instincts. From the outset treatment has been shaped by prevalent notions of the nature of disease, and maladies provoked by the enmity of a primitive deity, or by the malicious magic of a fellow creature, are only likely to be cured by magical methods. In Osler's words: "To a very definite but entirely erroneous pathology, was added a treatment rational in every respect, had the pathology been correct." The primitive medicine and the art of the medicine-man survive, to this day among the savage races of the earth, and he would be a bold man who should deny their survival amongst those races which regard themselves as the highest products of civilisation. Are any of us wholly free from such ideas?

For ages medicine has striven to shake off her bonds, and to attain to the status of a science. The first act of the drama was staged in ancient Greece. We know well that the true spirit of inquiry, the desire for knowledge for its own sake, was innate in that wonderful race, of which the intellectual life centred around the city in which the people "spent their time in nothing else, but either to tell or to hear some new thing." The legacy of Greece embodies not only the Parthenon and the Erechtheum, the sculptures of Pheidias and Praxiteles, the plays of Æschylus and Euripides, the thoughts of Socrates and the works of Plato. Greece gave us also Aristotle and Hippocrates. Only the true spirit of science could have prompted the minute and accurate research into the structure and functions of living things which are embodied in the writings of Aristotle, or the pictures of disease and its symptoms to be found in the clinical records of Hippocrates. Do we not still speak of the "facies Hippocratica" and of Hippocratic succussion?

We cannot doubt that there were forerunners of Aristotle, nor that much of the knowledge embodied in his books had been collected by lesser men. Nor can we doubt that there were scientific physicians before Hippocrates, men of the schools of Cnidus and Cos, some of whose writings are included in the Hippocratic corpus. Indeed, Aristotle, whose lifetime overlapped that of Hippocrates, bears witness to this, when he speaks of physicians as men who usually base their medical theories upon principles derived from physics. We must rather suppose that, like other men of genius, Hippocrates illuminated and crystallised the floating knowledge in the atmosphere of the Asklepieion. But Hippocrates was something more than a man of science, for when we read what he has written we realise that the most cherished traditions of our profession, the rules of its conduct, were inherent in the Father of medicine, the author of the Hippocratic oath.

When, at a later period, the centre of Greek medicine shifted to Alexandria, Erasistratus and Herophilus had opportunities for the practical study of human anatomy such as none had before them; and in the second century of our era, the Greek tradition culminated in the life and writings of Claudius Galen, a great physician, a true enquirer of nature, author of many treatises, imbued with the spirit of Hippocrates, but not so great as he. It was the strange fate of this man to be set up as an oracle, to be regarded for more than a thousand years as infallible and his statements as admitting of no appeal. Then after Galen the curtain falls, to be rung up again only in the sixteenth century of our era.

During that long inter-act the races which had overthrown and over-run the empire of Rome were being educated *de novo*, to appreciate the culture which they had destroyed. Meanwhile, the keeping of the works of the ancient physicians passed to the Arab races, and for centuries were only known in Syriac or Arabic translations, or in retranslations from those tongues into Latin. Then in the end science stirred in her sleep in the thirteenth, and finally reawakened in the sixteenth century. There was indeed much leeway to be made up. Even as late as in the year 1559 Dr. John Geynes was cited before this College because he impugned the infallibility of Galen and was obliged to sign a solemn recantation of his error:—"Ego Johannes Geynes fateor Galenum, in iis quæ proposui contra eum, non errasse." Surely, in the Elysian fields, the shade of Galen chuckled!

Great as were the achievements of the fathers of medicine, they began to construct their edifice with the attics. Their anatomy was almost wholly that of the lower animals, and the physiology of Galen seems to us grotesque. The sciences upon which anatomy and physiology rest were hardly yet born. If medicine were to be established upon a scientific basis the structure needed to be firm from the ground upwards, and from the sixteenth century onwards, the foundation sciences, and those which form the lower stories, have been cultivated and advanced, largely by medical men who saw them to be essential to the progress of their own science and art.

So medicine, oldest of applied sciences, older indeed than the sciences applied, has through the ages furthered the growth of natural knowledge. How profound her influence has been, and how it has been exerted, it is my present aim to show.

Research and education are closely linked, but whereas from their earliest days there have existed, in the universities of Europe, the three professional faculties of Divinity, Law, and Medicine, that of Natural Science is of quite recent development. For the student with a scientific bent two paths were open; he might either attach himself to the Faculty of Medicine, or might approach his chosen studies by way of mathematics.

Even down to the seventeenth century, or later, the university course in medicine was almost wholly theoretical. The Professor expounded to his pupils the writings of Hippocrates and Galen, together with those of some of the great Arabians, such as Avicenna and Rhazes. Such were the duties assigned by Linacre to his lecturers at Oxford and Cambridge, and those of the Regius Professors at those ancient seats of learning. Thomas Molyneux (1661–1733) a young graduate of Dublin, where he was afterwards Professor of Medicine, visited Oxford in 1683, and heard the Regius Professor, Dr. Luff, "read on the first aphorism of Hippocrates in the Physic School; where giving an account of the shortness of man's life since, and the length of it before the flood, he made up of Mr. Burnett's fancy, not at all altered but in the word." No wonder that Molyneux was not diverted from his purpose to continue his studies at Leyden, where clinical medicine was being taught in a university clinic. Elsewhere clinical knowledge was acquired by attendance upon the practice of a physician or surgeon, a system of apprenticeship which has this to its credit that out of it has grown the English system of bedside instruction to small groups of students. The first attempt to start clinical teaching within the university was made in Padua in the late sixteenth century, but the first organised clinic was that in Leyden, started in about the year 1630.

The study of science for its own sake, apart from any professional applications, began again in the sixteenth century, and was active in the century which followed. In this country Oxford took a large part in the renascence of pure science. There Robert Boyle, the "father of chemistry," set up his private laboratory in 1654; and around John Wilkins, Warden of Wadham, the college of Mayow and Sydenham, and one to which science and medicine owe much, there gathered a group of men eager for the advancement of natural knowledge, who, with the members of the "Invisible College" in London, formed the nucleus of the future Royal Society. In the same century chairs of astronomy, natural philosophy, anatomy and botany were founded in Oxford, and the Botanic Garden was established. In 1657, Thomas Millington (1628–1704) a President of this College, was made Sedleian Professor of Natural Philosophy, and the first Savilian Professor of Geometry and Astronomy, John Bainbridge (1582–1643) was also one of our Fellows.

How large a part members of our profession played in this reawakening of science is shown by the large proportion of medical men among the original Fellows of the Royal Society. Of the total of 115, which included Peers, Clerics and distinguished people such as John Evelyn and Samuel Pepys, only a small proportion were men of science in any strict sense, and of these no less than 25 were Doctors of Medicine, whilst 21 were Fellows of this College.

In the reawakening of medical science Italy took the lead, and especially in the study of anatomy. Of her universities, Padua, under the enlightened rule of the Venetian Republic, became the chief centre of medical teaching in Europe, and thither repaired the pick of our English students to profit by teaching such as they could not obtain at home. Later, when the star of Padua paled for a time, Leyden took its place as the cynosure of students of medicine.

Of the professions open to him in former centuries that of medicine would obviously make most appeal to the youth of scientific bent, and as L. C. Miall puts it in his book on "The Early Naturalists":—

> "The medical school furnished the only regular training for the naturalist, whilst he found in the medical profession the likeliest means of earning his bread."

In his Rectorial Address to the University of Aberdeen, delivered in 1874, Huxley brought out the same point, with even wider application, when he said:—

> "Within my recollection, the only way in which a student could obtain anything like a training in physical science was by attending the lectures of professors of physical and natural science attached to the medical schools."

Still more striking is the following passage from the same address:—

> "In the days when all the innumerable applications of physical science to practical purposes were non-existent even in dreams; days which men living have heard their fathers speak of, what little physical science could be seen to bear directly upon human life lay within the province of medicine. Medicine was the foster-mother of chemistry, because it had to do with the preparation of drugs and the detection of poisons; of botany because it enabled the physician to recognise medicinal herbs; of comparative anatomy and physiology, because the man who studied human anatomy and physiology for purely practical purposes was led to extend his studies to the rest of the animal world."

Now that the practical applications of science are so far greater even than when these words were spoken, and a course of scientific training is necessary or desirable as a preparation for so many walks of life, there have sprung up schools of physical science of which the Royal School of Mines and the College of Chemistry, now fused into the Imperial College of Science, were the earliest to be established in this country. Our universities also teach science in all its branches, and grant degrees therein. In a word, science has been weaned from its foster-mother.

Seeing, then, that in the past medicine has supplied opportunities of education for students of natural philosophy and natural history, and has, at the same time, supplied a stimulus to their researches, it need cause no surprise that our profession can claim, amongst its most honoured members, not a few whose work has inaugurated new epochs in widely diverse branches of natural knowledge.

At first sight it would appear that astronomy, to which the natural approach is through mathematics, is as remote from medicine as any science can be; but there was a time when the pseudo-science of astrology supplied a close tie between the study of the stars and that of disease. The mediæval physician was profoundly influenced by the horoscope of his patient, and studied the motions and conjunctions of the planets to obtain such help in diagnosis and prognosis, as is afforded nowadays by the blood-count or electro-cardiogram. He was expected to have some knowledge of astrology, and even in the sixteenth century there were amongst our Fellows such men as Thomas Twyne (1543–1613), who gained more fame as an astrologer than as a physician, and some note as a poet. True medical astronomers, on the other hand, have been few in number, but Nicolas Copernicus (1473–1543), who revolutionised man's ideas of the universe, was a physician, and amongst lesser ights, mention may be made of our Fellow John Bainbridge.

Another science which has little contact with medicine is geology, save in so far as the nature of soils has bearings upon public health; but medical men have played very important parts in its advancement. Thus, Nicholas Steensen, commonly called Steno (1638–1686), who discovered the parotid duct which bears his name, may be described as one of he founders of geology and mineralogy. Most of his active life was spent in Florence, where he held he post of physician to two successive Grand Dukes. Of him von Zittel wrote, in his History of Geology, hat he was the first who sought to solve geological problems by inductive reasoning. He threw much ight upon the formation and structure of crystals, and as Leonardo da Vinci had done a century and a half earlier, he maintained that fossils are the actual emains of animals and plants of former epochs. He nded his life as a Catholic bishop, and his ascetic habits undermined his health. This brilliant Dane is ntitled to rank among the great ones of science, as anatomist, geologist, mineralogist, and physician, but his researches, so far in advance of his time, nly received their due recognition after much f his work had been done over again by later nvestigators.

John Woodward (1665–1728), Professor of Medicine t Gresham College, and Fellow of this College, also olds a distinguished place in the annals of geology. By his observations he acquired a most extensive nowledge of the structure of the earth's crust, and ad learnt much as to the superposition of the various trata, but he propounded a fantastic hypothesis that he whole globe had been taken to pieces at Noah's ood, and that from the resulting "promiscuous mass" the various strata had been deposited in uick succession. He bequeathed his collections to he University of Cambridge, where they form the ucleus of the museum which bears his name. Woodard was less eminent as a physician than as a eologist, and was evidently a quarrelsome fellow, or he forfeited his fellowship of the Royal Society ecause he insulted Sir Hans Sloane, to whom he efused to apologise; and a quarrel with Mead, over the treatment of small-pox, led to a passage of rms, in which the sword of Mead but the tongue f Woodward gained the mastery. "Take your life," aid Mead; "anything but your physic," was the eply. The celebrated James Hutton (1726–1797), so, who propounded the rival, and sounder theory hat the moulding of the crust of the earth has een effected gradually, by processes such as re now at work, was a Doctor of Medicine of eyden, but soon abandoned the idea of medical ractice.

In more recent times the presidential chair of the Geological Society has been occupied by William Babington (1756–1833), physician to Guy's Hospital, and by John Whittaker Hulke (1830–1895), surgeon to the Middlesex Hospital, to whom that Society awarded the highest prize in its gift, the Wollaston medal, founded by our former Fellow, the distinguished chemist and mineralogist of that name.

Physics and chemistry are the fundamental sciences upon which physiology and medicine rest, and throughout their history have been closely associated with medicine. Galileo Galilei (1564–1642), equally pre-eminent as astronomer and physicist, was a student of medicine when he watched the swing of the lamp in Pisa Cathedral, and so discovered the law of the pendulum. It was by his pulse that he timed the swing, and the first use which he made of his discovery was to construct an instrument to measure the frequency of its beats. The other outstanding physicist of the sixteenth century was a Fellow, and sometime President of this College, William Gilbert (1540–1603), founder of the science of magnetism, who recognised the earth's magnetic properties. Of him Dryden wrote:

> "Gilbert shall live till loadstones cease to draw,
> Or British fleets the boundless ocean awe."

This College can also claim amongst its Fellows one of the most brilliant men of science whom our country has produced, Thomas Young (1773–1829), whose discoveries in optics, and especially that of the interference of light, went far to establish the undulatory theory. He was the first to detect astigmatism, and threw much light upon the mechanism of the eye and on colour-vision. He was a great linguist also, and by his work on the Rosetta stone aided materially the interpretation of the demotic text thereof. Yet he found time to hold the office of physician to St. George's Hospital, and to practise medicine.

Amongst other great medical physicists I may recall the name of Luigi Galvani (1737–1798), physician and anatomist, who was led to the discovery of current electricity by his investigations of the electric organs of certain fishes; William Charles Wells (1757–1817), who solved the problem of dew; Julius Mayer, physician of Heilbronn, to whom is due some of the credit of the determination of the mechanical equivalent of heat, and, in our own time, Hermann von Helmholz.

There was a time, towards the end of the seventeenth century, when a dominant position in medical thought was held by a group of so-called iatro-physicists, who, influenced by the work of Galileo and his followers, and by the views on physiological problems, of two great mathematicians, Descartes (1596–1650) and Borelli (1608–1679), endeavoured, but with far less competence, to extend them to all physiological processes by the supposed action of forces upon particles of various shapes and sizes. Like the iatro-chemists, whom they superseded, they went too far, had their day, and passed. In the true line of succession from Borelli, on the other hand, was James Jurin (1684–1750), a Fellow of this College and physician to Guy's Hospital. He was an eminent mathematician and physicist, whose aim it was to make physiology an exact science.

With chemistry the links are even closer. The alchemist, who sought to prepare the elixir of life, had kindred aims to those of the physician. Later, in the period of the iatro-chemists, followers of Paracelsus, van Helmont and Sylvius, medicine was regarded as a mere branch of chemistry, and physiology as a study of fermentations. Curiously like, and yet quite unlike the physiology of to-day. A more practical tie between chemistry and medicine was provided by the chemical side of pharmacy and the study of poisons.

It was not until the seventeenth century that chemistry began to be studied as a pure science, in the days of Robert Boyle, upon whom, as an appropriate recognition, Oxford bestowed the degree of Doctor of Medicine, and others who, like him, were actuated by a desire to know the nature and composition of things. At Oxford, the second holder of the short-lived Ashmolean Professorship of Chemistry, Edward Hannes (d. 1710), was a physician; in the early years of the eighteenth century lectures on chemistry were given by John Freind (1675–1728), a Fellow of our College and Harveian Orator, and by several other medical graduates; and the first holder of the Aldrichian chair, founded in 1803, was John Kidd, afterwards Regius Professor of Medicine.

In the earlier days a knowledge of practical chemistry was only to be acquired by students in the shops of apothecaries, and as a scientific training this left much to be desired. It was Vauquelin (1763–1829) who first organised courses of instruction in his own laboratory in Paris, and this method was followed by Thenard (1777–1857) and Gay Lussac (1763–1829) and greatly extended by Liebig (1803–1873). Ernst von Meyer states that the laboratory of Thomas Thomson (1773–1852), a Doctor of Medicine of Edinburgh and Professor of Chemistry in Glasgow, was the first to provide practical teaching in Great Britain, and it was not until 1845 that the College of Chemistry was established in London, with A. W. Hofmann as its director.

The list of physician chemists is a long one, and only a few of the most eminent can be mentioned. First may be recalled John Mayow (1643–1675), one of the greatest of them all. Mayow stands high on the roll of physiologists, as well as of chemists. From the point which he reached only one step remained to the complete explanation of respiration and combustion, and but for his too early death, the discovery of oxygen would almost certainly have been antedated by a century, and phlogiston would never have been heard of. Although a Doctor of Civil Law, Mayow practised medicine at Bath. A contemporary of Mayow was our Fellow Thomas Willis (1621–1675), whose work upon the anatomy of the brain is commemorated by the circle of arteries which bears his name. But Willis was also no mean chemist, and to him we owe the discovery of glycosuria. Mention must be made of Friedrich Hofmann of Halle (1660–1742), a contemporary of Boerhaave, and of the illustrious Herman Boerhaave (1668–1738) himself, whose treatise on chemistry was long the best text-book of the subject. Yet eminent as Boerhaave was as a chemist, it was as a physician and Professor of Medicine that he was pre-eminent, and it was during his tenure of its chair of physic that Leyden, as a school of medicine, reached its zenith. Cullen (1710–1790), Joseph Black (1728–1799) the discoverer of latent heat, and Wöhler (1800–1882) who, by his synthesis of urea, bridged the imaginary gap between inorganic and organic compounds, were all members of our profession who made notable contributions to chemical knowledge. It was a Professor of Medicine of Halle, Georg Ernst Stahl (1660–1734), who propounded the strange theory of phlogiston, which, like the old man of the sea, clung around the neck of chemistry and obsessed chemists for more than a century. This hypothesis, which presented an inverted picture of the truth, like a glove turned inside out, was upheld by men of the highest ability, and by none more tenaciously than by such men as Priestley and Scheele, whose own researches were knocking away the props upon which it rested. The great Swedish man of science, Berzelius (1779–1848), the foremost chemist of his time, and the inventor of our system of chemical symbols and formulæ, was a Doctor, and for a time a Professor, of Medicine; and it was by his friend Alexander Marcet, a Fellow of this College, and one whose services to biochemistry are not sufficiently remembered, that Berzelius was led to illustrate his lectures by experiments.

Two more physician chemists may complete our series, William Hyde Wollaston (1766–1828), a Fellow of this College, a most eminent man of science, whose contributions extend over physiology and pathology, mineralogy, optics, botany, and above all chemistry, and William Prout (1785–1850). Wollaston discovered the malleability of platinum, a property of great value to chemists and physicists alike, detected cystin in urinary calculi, and invented the camera lucida. Prout was one of the founders of biochemistry, and discoverer of the hydrochloric acid in the gastric juice. His much discussed hypothesis, usually spoken of as "Prout's law," that the atomic weights of other elements are multiples of that of hydrogen, and that hydrogen is the basal substance from which all the other elements are formed, has long served as a potent stimulus to observation and research, and now, in a sense, is coming to its own.

In these later days the ties between medicine and chemistry are being knit more closely than ever before. Most drugs of recent introduction are, like aspirin, by-products of the gas-works or dye factory, or like salvarsan and its allies, synthetic products of the laboratory. But far more important to the progress of medical knowledge is the light which is being thrown, by the rapid advance of biochemistry, upon the problems of metabolism and chemical structure of the body.

The history of other sciences tells a like story. Almost all the early botanists were medical men, and the chief stimulus to the study of botany was the search for useful drugs. This is true even of classical times, the days of Theophrastus and of Dioscorides. The early scientists were, with few exceptions such as Archimedes, observers rather than experimenters, and the mere differentiation and naming of genera and species, a branch of science which dates back to the Garden of Eden, and of which that great naturalist, Linnæus, was a brilliant exponent, afforded an immense field of work. Of the "Materia Medica" of Dioscorides Charles Singer writes:—"Its history has shown it to be one of the most influential botanical treatises ever penned. It provided most of the little botanical knowledge which reached the middle ages. It furnished the chief stimulus to botanical research at the time of the renaissance." In the fifteenth and following centuries a long line of medical botanists carried on the tradition, including Brunfels (1484–1534), Fuchs (1501–1566), Bock (1498–1554), and Gesner (1516–1565) the most learned naturalist of his century, botanist, zoologist, artist and professor of Greek, who died of plague whilst faithfully carrying out his duty, as town physician at Zurich, during an epidemic of that malady.

But to quote Miall once more:—"It was generally believed that for every ill that flesh is heir to, Nature had designated some plant as the appropriate cure," and again "Some believed that Providence had caused particular plants to grow in those districts where the diseases which they cure are prevalent." Can it be denied that such tenets are held by millions at the present day?

The high distinction of having initiated the study of vegetable anatomy and physiology, those higher branches of botany, is shared by two men of the seventeenth century, both of whom were physicians. One of them, Nehemiah Grew (1641–1712), we may proudly claim as a Fellow of our College. He it was who first recognised the sexes of plants and the functions of the stamens, but he himself gives some of the credit for this to our former President, Thomas Millington. Of Grew, Hallam wrote that "no man, perhaps, who created a science has carried it farther," but he must share the renown with no less a colleague than Marcello Malpighi (1628–1694), in whose splendid record the study of plant anatomy takes but a minor place. A professor of medicine, zoologist and botanist, founder of the science of embryology, elucidator of the structure of the lung, spleen and kidney, to Malpighi must be assigned very high rank amongst those who have contributed to the advancement of natural knowledge

On the other side, the greatest of systematic botanists, and founder of our system of nomenclature of plants and animals, Carl Linné, commonly called Linnæus (1707–1778) who has been said to have "found botany a chaos and left it a cosmos," was not only a Doctor of Medicine, but held the office of Physician to the Swedish Navy, and practised in Stockholm for a time.

The ties between medicine and zoology are less obvious, for the search for animal drugs can hardly have led anyone to the study of natural history. But the transition from human to comparative anatomy is easy, and there have been medical zoologists from early times. In the sixteenth century we find the names of Rondelet (1507–1566), Belon (1517–1564), Conrad Gesner once more, and of our own former President Edward Wotton (1492–1555), whose work, "De Differentiis Animalium," gained for him an European reputation, but is marked rather by erudition than by originality of outlook and observation. In the seventeeth century there lived and worked Malpighi, whose chief contribution to zoology was a very complete study of the anatomy of the silkworm, Swammerdam (1637–1680), the Dutch microscopist who first observed the red corpuscles of the blood, and two Fellows of this College, Martin Lister (1638–1712) a man with wide interests and a special bent for the study of marine and freshwater molluscs, and Edward Tyson (1650–1708), the author of monographs upon the chimpanzee, porpoise, opossum and rattlesnake, and who first described the patterns upon the finger-tips.

In recent times, we may claim Richard Owen (1804–1892) who was credited with the power of reconstructing an extinct monster from a single bone; and also one whose eloquent words still ring in the ears of some of us, the greatest of medical zoologists, Thomas Henry Huxley (1825–1895).

In reality, botany and zoology are far more closely allied to medicine than our fathers knew. Since most maladies are due to invasion of the body by lowly organisms, some animal and some vegetable, we need to approach the study of disease from the standpoint of the invaders which are ever trying to gain a foothold, as well as from that of the tissues which present the rôle of a culture-medium and offer all the resistance in their power. In that struggle, which is waged with varying fortunes, we physicians are the allies of our patients, whose own tissues play the chief part in the defence. In order that our aid should be as efficient as possible we need to know all that can be learned about the nature and habits of the invaders, and of the insects which are the other hosts of some of them; and the study of bacteria is a branch of botany, and that of protozoa of zoology.

At the renascence of the medical sciences it was in human anatomy that the first advances were made, and the new anatomy was based upon dissection of the human body. The pioneer of this advance was Andreas Vesalius (1514–1564). His work was carried on in Padua. Others had dissected the human body before him, in Alexandria and at a later time in Bologna, but the prevalent teaching of anatomy followed the text of Galen, and was based, almost wholly, upon dissections of monkeys and lower animals. From Vesalius dates the great period of the medical school of Padua, during which there taught there, after Vesalius, Fallopius (1523–1562), Fabricius of Aquapendente (1537–1619), Casserius (1561–1616), and Spigelius (1578–1625), men whose names are written large upon the organs and tissues of the body. To Padua also, despite the difficulties, discomforts and even dangers of travel in those times, came students from afar, and amongst them our own Thomas Linacre, John Caius and William Harvey. As Sir Clifford Allbutt justly said, in his notable Harveian Oration, delivered a quarter of a century ago:—"It was in Padua that medicine, long degraded and disguised, was now to prove her lineage as the mother of natural science, and the truth of the saying of Hippocrates, that to know the nature of man, one must know the nature of all things."

It is not necessary that I should dwell upon the share of medical men in the building up of modern physiology, for from Harvey onwards it has been almost entirely their work; but the day has passed in which physiology was regarded as the handmaid of medicine, and it has taken its proper place as a great independent science.

Morbid anatomy, as an adjunct to clinical medicine, dates back to the illustrious Morgagni (1682–1772), and so to Padua once more, and is intimately associated with the other great names of Albert von Haller (1708–1777) and Rudolph Virchow. Knowledge of the changes, both great and minute, wrought by disease in the organs and tissues is still as essential as ever in the training of the physician and surgeon, but morbid anatomy is no longer coextensive with pathology, and the pathology of to-day has entered upon entirely new fields. So, as we well know, modern pathology has rendered possible the destruction of the agents of disease, or of their insect hosts before they reach the body, the triumphant achievements of preventive medicine. Moreover, as the result of the study of immunity, the bacteriologist is teaching us how to apply Nature's own selective remedies in place of the cruder drugs of earlier days. At the same time, the pharmacologists are bringing to the test of scientific method the actions and uses of drugs which have long been used in an empirical way, and are able to explain the proved utility of some which owe their introduction into the pharmacopœia to superstition, or to some grotesque hypothesis.

So, from the foundations of chemistry, physics, and biology, through the lower stories of human anatomy and physiology, of pathology and pharmacology, we reach the attics once more, and come back to Hippocrates, to the bedside examination of the sick and injured. But, now that the foundations have been well and truly laid, the clinical medicine of to-day is able to advance on scientific lines, and the study of the abnormal can be based upon a knowledge of the normal.

All who have taken part in this work, all those heroes of science and medicine whose names have been mentioned, may rank as benefactors of this College, both those who were its Fellows and those who were not, and in commemorating them I may claim to have followed Harvey's first injunction.

It is natural, nay inevitable, that as medical science grows and advances, some of the workers in the field should elect to follow the path which leads through the laboratory, whereas to others the wards make a stronger appeal; and thus is taking place a differentiation of medical workers into distinct groups, and there is danger that the fission may go too far. The worker in the laboratory, wedded to his more exact methods, and distrustful of those with which the clinician is often compelled to be content, is apt to place his bedside colleague in a lower grade or caste than his own. He is apt to look too much at the disease and too little at the patient, and to forget how greatly the former is shaped by the reactions and idiosyncrasies of the latter.

We all know that a line of treatment resting upon a strictly rational basis may be useless or even harmful in an individual case. It would be nothing short of a calamity were all the best scientific workers who enter our profession to be diverted from its clinical side to laboratory investigation, for of no walk of life is it more true than of the practice of our art that "the multitude of the wise is the welfare of the world." From the ranks of the clinical workers have been drawn those who, in the past, have built up medical science. It was in the intervals of their clinical practice that such men as Harvey himself, William Gilbert, Nehemiah Grew, and Thomas Young carried out the researches which have made them for ever famous; and indeed, clinical medicine is itself essentially scientific.

But clinical medicine is an art as well as a science, and in the sick room many qualities are called for which are not essential in the laboratory. A man who is deeply imbued with the spirit of science may prove a very poor practitioner, whereas another, rich in common sense, sound knowledge, experience, and human sympathy, but to whom abstract science makes little appeal, may make a very good one. Tact and equanimity, courage and restraint, patience with fads and sympathy with grief, diagnostic skill and manual dexterity are qualities called for in the daily work of the practitioner of medicine or surgery. The marvel is that, on the scientific side, he has accomplished so much, not that he has failed to accomplish more. It ill becomes his colleagues in the laboratory to think slightingly of him.

Medicine, indeed, embraces a number of constituent sciences, and for the attainment of her beneficent aims, all her branches need to work together in mutual respect, amity, and concord; to bear in mind Harvey's third injunction to that effect, and his reminder that: "Concordiâ res parvæ crescunt, discordiâ magnæ dilabuntur."

Not only are the diagnostic methods which we employ in accord with the demands of science, but also, by the bedside study of signs and symptoms, and the recognition of the morbid anatomical changes with which they are associated, as also by the observation of the effects of surgical removal or gunshot injury of parts, very notable contributions to physiology have been made.

Consider, for a moment, how our knowledge of the functions of the endocrine glands has been obtained. The acumen and care in observation of that splendid clinician Addison threw the first ray of light upon the subject, and removed the adrenal glands from the realm of mystery into that of observed fact. The gradual accumulation of facts concerning exophthalmic goitre, Gull's discovery of myxœdema, Kocher's observations upon cachexia strumipriva, and the effects of thyroid treatment, provide a connected story of clinical work in medicine and surgery, which led up to a solution of the functions of the thyroid gland, and which had its practical outcome in the restoration to health of many sufferers from myxœdema, the rescue of many cretins from imbecility and arrest of growth, and the amelioration of the lot of many sufferers from Graves's disease. Again it was the recognition of acromegaly by Pierre Marie, the study of its symptoms and morbid anatomy, the recognition by Fröhlich of the syndrome which bears his name, and that of the other results of pituitary defect, together with the surgical results of Cushing and others, which led us to our knowledge of the functions of the hypophysis, knowledge which has been greatly extended by the experimental work of Schäfer. Moreover, what inklings we have of the functions of the pineal gland, and of the adrenal cortex, are mainly derived from clinical observations of patients with tumours of those structures.

The chance that an accidental gunshot wound left the French-Canadian Alexis St. Martin with a gastric fistula, and that the American army surgeon, Beaumont, under whose care he came, was able to take full advantage of the opportunity so afforded, of studying the secretion and action of the gastric juice, proved of the utmost value in the elucidation of the problems of digestion. And in these times many clinical devices, such as test-meals, duodenal soundings, and bismuth meals, are throwing yet further light upon physiological as well as pathological processes.

The knowledge acquired in recent years of the mechanism of the heart's action is a triumph of scientific clinical medicine. This work, which is so closely associated with the names of James Mackenzie, Thomas Lewis, Wenckebach, and Einthoven, has been gained mainly by the study of derangements of the heart's beat in man, by means of the polygraph and electro-cardiograph.

But perhaps the most striking examples of all are afforded by the work which has been done upon the nervous system. Bouillaud described clinical and pathological physiology as the sister of experimental physiology, and since the middle of the nineteenth century an immense amount of knowledge of the functions of the brain and spinal cord has been acquired by the labours of a band of brilliant investigators, many of whom are our own countrymen, and most were, or are, physicians or surgeons. Of these I may mention Hughlings Jackson and David Ferrier, Charles Beevor, Victor Horsley, and Henry Head in this country, and on the Continent, Hitzig, Erb, Westphal, and Pierre Marie. By their researches they have furthered the work of the pure physiologists, Sherrington, Gaskell, Langley, Gotch, and others.

As regard localisation, the first definite steps indicating that the brain does not function as a whole, but as a congeries of organs, was the localisation by Broca, of the motor speech centre, in 1861, which was based upon the position of the local lesions in fatal cases of aphasia, and Hughlings Jackson's study of convulsions due to cortical lesions. These observations served as stimuli and pointed a way which was followed by many other observers, but by a not unfamiliar irony of things the assignment of a speech centre to the convolution of Broca no longer meets with acceptance.

Lastly may be cited the work of Head upon the seats of pain due to visceral lesions, and upon epicritic and protopathic sensations. It is clear that clinical observation is the royal road to the study of many kinds of sensory disturbance, in which an intelligent subject who can describe his sensations is needed, and in some instances the investigators have controlled their clinical observations by experiments upon themselves.

The examples quoted show that apart from the study of disease in bulk, and by statistical methods, there is also much to be learnt from the detailed study of individual cases.

In a letter which Harvey wrote, only six weeks before his death, to a Dutch physician who had sent him an unusual specimen, occurs the following passage: "It is even so—Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of Nature, by careful investigation of cases of rarer forms of disease. For it has been found, in almost all things, that what they contain of useful or applicable is hardly perceived unless we are deprived of them, or they become deranged in some way."

These words, as true to-day as when they were written, are full of encouragement for those of us for whom the study of Nature's experiments and mistakes has a special attraction. The structural malformation, or the hereditary and inborn departure from the normal of metabolism, although unimportant from the practical standpoint, may throw a ray of light into some dark place of embryology or biochemistry; and not a few of the rare maladies, such as chloroma, polycythæmia vera, sulphæmoglobinæmia, and the disease of which Bence-Jones albuminuria is a sign, offer fascinating and still unsolved problems of physiology and pathology.

Obviously clinical medicine presents immense fields of scientific research, and those who cultivate them have the added satisfaction of knowing that every advance of medical science will, sooner or later, bring in its train some forward movement of the healing art.

So, as we trace the history of natural science down through the centuries, we are confronted, at every stage, by the influence of medicine upon its progress. The desire to alleviate human suffering, to repair the ravages of disease, and to mend the broken part, has served as a powerful stimulus to observation and experimental work. It soon became obvious to the would-be healers that to understand disease they must needs understand the healthy workings of the organism, and that pure science must precede applied. So, as Huxley said, medicine became the foster-mother of the sciences. But she became their schoolmistress also, and attracted to herself men whose scientific abilities would hardly have found an outlet in the other walks of life open to them in the earlier days, and them she not only taught, but supplied with means of livelihood whilst they pursued their chosen studies. Her part was rather that of a mother than of a foster-mother. They, in their turn, repaid her care by laying firm foundations upon which a rational healing art could be built up, and, as we have seen, not a few of them achieved epoch-making results in sciences outside the range of medicine.

Thus it has come about that immense, and indeed incalculable, as is the debt of medicine to the pure sciences, the debt of science to medicine is hardly if at all less great. But these mutual obligations are but internal debts, and the fact that medicine, in its widest sense, is merely a branch of natural science was recognised even by Aristotle who, at the end of his work on respiration, wrote as follows:—

> "Our discussion of life and death and kindred topics is now practically complete. But health and disease also claim the attention of the scientist and not merely the physician, in so far as an account of their causes is concerned. The extent to which these two differ, and investigate diverse provinces must not escape us, since facts show that their enquiries are, to a certain extent at least, conterminous. For physicians of culture and refinement make some mention of natural science, and claim to derive their principles from it, while the most accomplished investigators into nature generally push their studies so far as to conclude with an account of medical principles."

Yet, as Huxley pointed out, "It is a peculiarity of the physical sciences that they are independent in proportion as they are imperfect; and it is only as they advance that the bonds which unite them become apparent." That this is so is far more obvious to-day than when these words were spoken more than 40 years ago. For as we gain more knowledge innumerable fresh links are brought to light; and the unity of natural science is daily being revealed more clearly as the boundaries of its several branches fade and become indistinct.

Few will any longer question the view that physiology is merely the chemistry and physics of living things. Physics has captured the structure of the atom, is absorbing chemistry into itself, and is becoming revealed as the great fundamental science, of which all the others are but branches. In this great complex of interlocked studies those which we class together under the comprehensive name of medicine have their allotted places, and advance in any one branch forwards the progress of the whole. To take our part in this progress is alike our privilege and our obligation as members of the great band of seekers after natural knowledge.

Upon the ceiling of the cloister of the University of Padua there are painted "stemmata" which record the sojourn there of many students who were councillors of their several "Nations," and amongst them are two which bear the name of Gulielmus Harveus, Anglus. Some of the designs are heraldic, but Harvey's is symbolic, nay prophetic. A right arm and hand holds up a caduceus, in which, in place of a lifeless staff, the twin serpents are entwined around a lighted candle which throws out beams in all directions. What more fitting emblem could have been devised? And yet these stemmata were painted when Harvey's work was scarce begun, and when he was still a member of the student body. To "search and study out the secrets of Nature by way of experiment" was his own way of life, and it is my duty to obey his injunction, and to exhort our younger brethren in the College to tread the path in which he led the way, and to see to it that in their hands the flame which Harvey lit shall burn as brightly as in Harvey's day.

Introductory Lecture
ON
PSYCHO-PHYSICAL INTERACTION.

Delivered at the Tavistock Clinic on Oct. 13th, 1924,

BY H. CRICHTON-MILLER, M.A., M.D. EDIN.,
HON. DIRECTOR, TAVISTOCK CLINIC FOR FUNCTIONAL NERVE CASES.

A COURSE of lectures on psychotherapy may well be introduced by a consideration of the interaction between mind and body. I find that both students and practitioners of medicine attend these lectures with views on this subject that are, to say the least, indefinite. The fundamental trouble is that our medical training tends to make us *causalists*—that is to say, we acquire a habit of labelling a clinical condition, and memorising a single cause for it. For instance, the picture of diphtheria is a clear-cut one, and it is satisfying to regard Löffler's bacillus as the causative agent. Asthma is a condition so simple to diagnose that we are generally saved the trouble by the patient's information. But when we talk of a cause, we find nothing specific, no satisfactory *causa causans* comparable to Löffler's bacillus. Every victim of asthma has his own views and theories as to causation. Rarely is it possible to correlate these with any of the views held by modern physicians. Frequently we are struck by the fact that anticipation and association constitute precipitating, or at least predisposing, factors. Now and again we come across what appears to be a definite and specific ætiology. For instance, a patient may state that he gets asthma if he eats egg or any article of diet containing the minutest fraction of egg. On testing his protein sensitivity to egg we find he reacts energetically. Here, then, is a case in which we approach a cause for a morbid state. But in general the ætiology of asthma is complex, and the more we study it the more we are forced to recognise that the clinical picture results not from a cause but from the conjunction of various conditions, and that these conditions need not all be physical, but may be some physical and some emotional in their nature. To study such a disease we must approach it from the standpoint of conditionalism. A woman who suffered from asthma whenever she was at the seaside discovered to her surprise during her first pregnancy that she was unaffected, and this observation was confirmed during subsequent pregnancies. Hence her asthma, if it was caused by an atmospheric factor, was also influenced by a metabolic factor involved in pregnancy. Again, I have said that a disease such as asthma may be conditioned not only by different organic factors but also by emotional factors. For proof of this we have but to look to the various forms of faith-healing, suggestion, and auto-suggestion. All of these can claim with good authority permanent cures of cases of asthma. Most general practitioners have come across cases of this disease conditioned by all sorts of fears, preconceptions, and superstitions. I submit, then, that no efficient treatment of asthma can be based upon any preconceived theory of cause and effect. We must study the conditions which determine attacks, and we must address ourselves to the treatment of these conditions in order of their therapeutic accessibility.

THE LIMITATIONS OF NEUROLOGICAL LOCALISATION.

Our neurological friends have for many years laid great stress on localisation, and by localisation astonishing and dramatic cures have been and are being wrought. But localisation frequently affords little or no help in therapeutics. It is right and proper that we should all know that paralysis agitans is essentially the result of degeneration of the posterior elements of the basal ganglia. But the knowledge brings with it no clear therapeutic inspiration. I would almost go the length of saying that to some medical minds—of second-rate calibre, of course—the knowledge may lead to a therapeutic pessimism even greater than is called for. Is it not possible that sometimes our neurological localisation impedes our searching as conscientiously as we might for sources of degeneration, such as systemic infections? If the sufferer from paralysis agitans have an intestinal infection of long standing, it is clearly more important to him that the organism be isolated than that the neural degeneration be localised.

Ménière's disease is another example. I have seen a case so labelled that had undergone five operations—two on the mastoid and three on the labyrinth. When all the semicircular canals had been obliterated the symptoms remained apparently unaffected. Now I am perfectly prepared to believe that this patient originally suffered from organic disorder of the ear. I had no opportunity of judging as the patient was brought to me only after the failure of these somewhat heroic methods. I can, however, make two statements about this case: (1) her transverse colon, which was removed by an eminent surgeon and is to be seen in a certain University museum, measured 19 inches in diameter (the patient was an ill-developed girl of 23); (2) psychologically she was a complete case of the Freudian Electra complex down to the last detail.

I imagine that surgeons of the Lane school would have been very ready to attribute the vertigo to intestinal toxæmia. I am certain that many psychoanalysts would have put it down to conversion hysteria, and we know that the otologists (for several were involved) attributed the vertigo to labyrinthitis. From the analytical standpoint there is no necessity to admit either of these physical factors. I mean by that that the psychological picture was complete; that the vertigo and its incidence fulfilled the defence function of a psychoneurosis, and that it was possible in the subsequent analysis to associate the illness and its various manifestations with the patient's morbid reactions to her situation. Her mind was in an exceedingly morbid condition—only comparable to the state of her colon. And the proof remains that after her colon had been transferred from the abdomen to the museum, and after her ear had been operated on five times she continued to complain of vertigo.

We may say with a certain degree of safety that no one of these factors was the cause of the vertigo. We must assume, I think, that all three were conditioning factors. (In point of fact I believe there were others which need not be referred to.) The function of the psychotherapist is, I take it, to influence these conditions in so far as he can do so through the mind. It is not his business to extirpate semicircular canals nor to remove a distended colon. On the other hand, I conceive it to be very much his affair to assess as far as possible the relative importance of the ætiological conditions. It is possible, but perhaps not probable, that the otologists might have spared a canal or two, had they been in possession of the data obtained from subsequent analysis. It is also conceivable that the abdominal surgeon, had he possessed this information, might have given a somewhat less confident prognosis. But the human mind relapses very easily to causalism and only holds on to a conditionalist standpoint with difficulty. Whatever may be thought and said in other departments of medicine let the psychotherapist, before all his colleagues, maintain a broad conditionalist outlook, for there is nothing that has more militated against the popularity of our work than the narrow views of psychogenesis that have been enunciated by some. The more experience I have in this field, the more am I inclined to say that very few diseases are caused solely by a mental factor, and that there are few diseases into which a mental factor may not enter. We often hear the taunt, "Can Christian Science cure a broken leg?" Of course the answer is in the negative, and yet it seems to me conceivable that acute anxiety may have in certain cases such a far-reaching effect on the circulation as to influence, albeit in a minimal degree, the process of repair.

One of the best examples of conditional ætiology is probably dementia præcox. The factor of gonadal inadequacy has been clearly demonstrated by Sir Frederick Mott's researches. Jung and other analysts have shown the constant presence of a conflict over authority. These theories may seem mutually contradictory, but if we regard them from the point of view of conditionalists, we see in them factors which by their conjunction may determine the familiar psychosis. It is clear that the adolescent, as he passes into maturity, regards the challenge of life in relation to two factors. The first is the menacing character of that challenge, and the second is the biological sense of adequacy within himself. If a boy is always assured by his father that he will never succeed in life if he does not mend his ways, he is apt to conceive of life as a very arduous and exacting proposition. If he feels the potency of a normal young adult male, he will face this and make good. But if the endocrine factor is defective he will retreat from life, and if it is very defective he will still retreat from it, though the prospect of manhood has been presented to him in perfectly suitable terms. If a motor-car stops on a hill we may say that the engine is weak or the hill is steep. This is the attitude of the causalist. The conditionalist says that for such a hill the engine was too weak, or for such an engine the hill was too steep.

THE CONNEXION BETWEEN DUCTLESS GLANDS AND MENTAL PROCESSES.

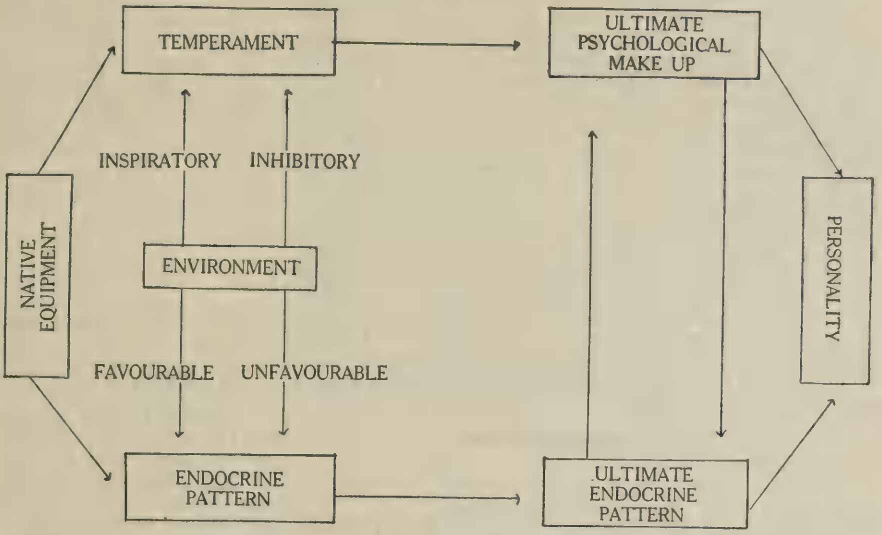
This example brings us to the important question of the connexion between the ductless glands and mental processes. There are certain scientific circles in which it is fashionable nowadays to decry organotherapy. The usual high-brow formula is, "We have not a trace of evidence that any endocrine substance taken by the mouth is assimilated, with the sole exception of thyroid." It is very natural. The commercial drug houses have exploited organotherapy with more zeal than wisdom. The subject is intensely complex, and it is always easy for the scientist to attribute to suggestion any therapeutic efficacy that may be claimed for organotherapy.

As I am not an endocrinologist I hold no brief for organotherapy, but I advise you very strongly to read all the best literature you can get on this subject—experiment continually, and formulate your own conclusions as to efficacy or otherwise. The organotherapy of to-day may be a very feeble affair, but I believe very firmly in the organotherapy of to-morrow, and that is going to be based largely on honest clinical observation. There is nothing more dramatic in the whole of medicine than the dissipation of the depression of a subthyroidic patient by the administration of thyroid extract. That particular value of thyroid was not discovered in a laboratory. I believe there is a range of subtle subjective phenomena that depend on endocrine deficiencies or disequilibria and that one day we shall be able to treat them by an improved organotherapy. I hope I have said enough to make you realise that the practical psychotherapist must always have an eye open to the patient's endocrine situation. In other words, the endocrine factor constitutes a condition of many abnormal mental states.

SYSTEMIC INFECTION.

Another condition which the psychotherapist must be alive to is that of systemic infection. I see a good many cases who are sent by their doctors as being "organically sound." In some cases their mere appearance belies this statement. In other cases a blood count reveals a serious lymphocytosis. In others, again, there is found to be a very low basal metabolic rate. In one case I recall this phrase was applied to a man whose cerebro-spinal fluid gave a very positive Wassermann reaction. It is, no doubt, a matter of terminology, but I should not feel inclined to describe any such cases as "organically sound."

Now the psychotherapist needs to consider the condition of toxæmia more than most physicians for this reason. A large number of our patients are people who temperamentally react to toxic absorption first of all on the psychic plane. They may develop irritability, lassitude, or phobiæ. They repeat the familiar formula, "It's all my nerves, doctor." Their family physician regards them as run down, and when the usual tonics fail to effect a cure he begins to suspect them of being hysterical, and casts around for some wastepaper basket to which he may consign such unrewarding clinical material. If such a case had reacted to the systemic infection by developing arthritic changes, the family physician would no doubt have instituted a careful search for a focus of infection. Tonsils and sinuses, teeth and intestines would probably have been thought of with a view to radical treatment. But if the symptoms are mere "nerves," or even a threatening psychosis, focal infection does not occur as a possible ætiological factor. Recently I was consulted about a young married woman who had developed mental symptoms shortly after her first confinement. She was in a private asylum. I communicated with the superintendent and asked for information. I was told that she had a bad heredity, and was holding her own. I asked if there was any evidence of a toxic factor, and suggested that a blood count might possibly throw some light on the situation. The only result was that the husband was told that the examination I suggested could not be carried out, and that he might remove his wife if he wished me to treat her. Now I perfectly appreciate the superintendent's emphasis on heredity, but we must remember that heredity is a factor that influences prognosis, but does not affect treatment. In mental cases a bad heredity should stimulate us therapeutically—it too often tends to paralyse us. I think the superintendent had allowed himself to be paralysed by the idea that a puerperal psychosis was just what one would expect in a woman with such a heredity. But why not investigate the question of infection? Surely it is not too much to ask for a blood count? Furthermore, it is obvious that in all puerperal conditions the question of endocrine disequilibrium necessarily arises, seeing that parturition involves the greatest physiological upheaval to which the endocrine system can be subjected.



HOW PERSONALITY IS BUILT UP.

I have found it useful in studying personality to think of the factors that have contributed to its final form according to the accompanying schema. By native equipment I mean the things that we start with, such as musical talent, red hair, and a sense of humour. Red hair is no doubt attributable to something specific in our original endocrine pattern. Whether musical talent is associated with the endocrine system or not is an open question—many have claimed that it is so; and when it comes to a sense of humour, I only know that of all human characteristics this is the most essentially congenital one in that it appears to develop or not without any reference to environment.

Now our endocrine pattern is influenced by environmental factors, favourable or unfavourable. Thus a child may start life with an inherited potentiality of great stature, and owing to morbid influences the endocrine pattern may undergo change, and he may reach maturity with only stunted growth. Similarly, a child may start life with a well-balanced thyroid function, but when puberty supervenes the influence of the developing gonads upon the adrenals and on the sympathetic system may well result in an over-activity of the thyroid which we are accustomed to observe clinically, especially in girls. We are accustomed to think of the mental effects of hypertrophied tonsils and adenoids upon the child, but we are apt to forget that this result is produced entirely through the endocrine system. Chronic toxæmia affects first the thyroid and then the adrenals in such a way as to produce the familiar heaviness of such cases.

Thus we reach our ultimate endocrine pattern. Throughout life the endocrine system is subject to continual alteration of equilibrium of a physiological character, and throughout life it is exposed to toxic influences of one kind or another. Our personality at any given moment is what it is, partly because our endocrine pattern has undergone the changes which it has undergone. One woman is stout and cheerful because she has had five children, and the balance between her thyroid and ovarian hormones causes her to be so. This man is dull, irritable, and is losing initiative because an undiscovered abscess at the root of a molar has been slowly poisoning his thyroid for months, if not years. Every physician recognises that chronic constipation causes a multitude of troubles, both physical and mental, but we often fail to recognise that these morbid results can be interpreted in terms of adrenal deficiency.

Turning now to the temperamental factors, just as physiologic and pathologic factors constantly influence the endocrine pattern, so temperamental factors are subject to environmental influences of a psychic character. A child may be born with the possibility of a good memory, but his upbringing may do nothing to develop that memory, whereas another child with less possibility may be so trained as to develop to the full his power of memory. One child with excellent mathematical possibilities may go through life with them undeveloped, while another, no more richly endowed, becomes a Senior Wrangler.

Now the point we have to study as psychotherapists is the two-fold basis of personality—what I have called psychological make-up and endocrine pattern. I have tried to indicate some ways in which these attain their ultimate forms. Both contribute to personality, and it is useless to study the behaviour and reactions of an individual solely in psychological terms—still less in neurological terms. A depression which manifests itself after influenza is not a condition to be approached from the psychical point of view. Everyone will agree with this statement, and yet it may be paraphrased thus: "In so far as personality at any given moment is based upon the psychological make-up and the endocrine pattern of that moment, it is necessary to treat abnormalities of reaction from the psychological or the endocrine angle, according to which appears to be affected."

Thus, to go back to the question of dementia præcox. If there be a way to ensure gonad stimulation, it should certainly be used in conjunction with such psychological methods as are best calculated to overcome the patient's conflict over authority. So again, take the familiar disturbances of the climacteric. We know enough to realise that there are very definite psychological factors, and our success in treating these cases will depend upon our skill in both fields of therapy.

A great deal of dissension amongst doctors over psychotherapy may be traced to the fact that so few of us have successfully developed binocular vision. It behoves us as psychotherapists to develop this vision to the fullest extent possible, so that we may be able to approach every case with an open mind ready to accept whatever conclusions we may arrive at as to its ætiology, be the factors physical or mental. In connexion with the subject of this lecture the following books are worth reading: "The Sympathetic Nervous System," by Langdon Brown; "The Defective Delinquent and Insane," by Henry A. Cotton; "The Glands Regulating Personality," by Louis Bernan. The first-named is probably worth reading many times over. The second gives one a tremendous impression of the possibility of approaching mental disequilibrium from the point of view of toxic influences. The third is a very amusing, and to some extent suggestive book which should help us to think more clearly with regard to the endocrine system.

THE TREATMENT OF
MALIGNANT DISEASE OF THE TESTICLE.

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"It must first be recognised that carcinoma, in the beginning, is an absolutely local disease."—Robert Abbe.*

In dealing with the treatment of malignant diseases of any organ there are certain well-recognised rules of technique which every surgeon attempts to fulfil. Briefly stated, they are that the primary growth is to be widely removed with its primary lymphatic field and all intervening tissue in one complete mass. The operations for removal of a carcinoma of the breast and of the colon provide excellent examples of the fulfilment of these rules of technique, which in these instances are universally carried out. For certain reasons, such as the inaccessibility of the lymphatic field, these rules have never been generally applied to the surgery of the testicle. In this country the balance of opinion is overwhelmingly in favour of a limited operation, and in most other countries the extensive radical operation finds only a limited measure of support. Occasional spasmodic efforts have been made to popularise the extensive procedure, but nowhere have they succeeded, with the one possible exception of the French school. Even there, so distinguished a genito-urinary surgeon as Marion has declared against it, and in America the great exponent—Hinman—is not followed to any marked extent. In this country the degree of unanimity in favour of conservative measures is somewhat surprising, but nevertheless there is a certain limited demand for heroic measures, and it appears advisable that both methods should be described and subjected to close criticism before a definite pronouncement can be made upon their respective merits.

Lymphatic Drainage of the Testicle.

The drainage of any organ is of paramount importance when surgical procedures are to be planned, for it is the lymphatic distribution which determines the extent of the operative field. This point is of unusual importance in the case of testicular tumours, as I have already foreshadowed. I have, therefore, carried out some injection experiments of the testicular lymphatics in the post-mortem room on bodies of varying ages. The experiments were done on much the same lines as those of Jamieson and Dobson,[1] in 1910, and they give very similar results. These observers have come to be regarded as the leading English authorities on many areas of lymphatic drainage, and their tabulated results are worth quoting (Table I.).

Table I.—*Jamieson and Dobson's Results.*

No. of expt.	To right of I.V.C.	Front of I.V.C.	Between aorta and I.V.C.	Front of aorta.		Left of aorta.
1	0	1	1	0	0	1
2	0	1	2	0	3	2
3	0	1	2	1	0	2
4	0	1	2	2	2	3
5	0	0	3	2	Not injected.	
6	0	1	1	0	2	1
7	1	0	3	0	0	1
8	0	0	2	1	Not injected.	
9	0	0	2	0	0	1
10	0	0	1	1	Not injected.	
		Right side.			Left side.	

All cases were full-time fœtuses.
Figures refer to the number of glands injected.

In two of their cases an injected gland was found on the right side of the pelvic brim. Those injected on the right side were on the level of the lower pole of the right kidney, and those on the left were in close relationship to the origin of the inferior mesenteric artery and from it down to the bifurcation of the aorta. These were all glands of the primary lymphatic field, but the injection fluid passed quite readily into the glands around the origin of the superior mesenteric and of the cœliac axis arteries, across to the glands on the opposite side, and downward to the external iliac group.

My own experiments were made with a saturated solution of methylene-blue injected into the body of the testicle. The fluid could be seen mounting upwards and reaching the glands. All the injections were done in the presence of several observers, all of whom were satisfied that the vessels injected were lymphatics, and that the fluid in them was undoubtedly the injection fluid (Table II.).

Table II.—*Results.*

No. of expt.	Age.	Right ext. iliac.	Right of I.V.C.	Front of I.V.C.	Between I.V.C. and aorta	Front of aorta		Left of aorta
1	Full time fœtus	1	0	1	1	0	2	1
2	,,	0	0	1	2	0	1	1
3	56	1	0	1	2	0	0	1
4	14	0	0	1	2	0	1	2
5	12	1	1	1	3	0	2	1
6	9	0	0	2	2	0	1	2
			Right side.				Left side.	

It will be noticed that in both sets of experiments a high proportion of the glands on the right side lie either in front of the inferior vena cava or between it and the aorta. The latter group lie deeply in the groove between these vessels. Those on the left side are intimately related to the inferior mesenteric artery. In two of my experiments a vessel was injected which as far as I know has not been described previously. It occurred on the right side in each case, and left the cord with the vas deferens, with which it did not keep in close contact, but ran parallel to it at a higher level, and ended in the prostatic plexus.

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* Keen's Surgery, vol. iv., p. 158.

Simple Orchidectomy.

An incision is made one inch above and parallel to Poupart's ligament, and corresponds in length to the inguinal canal with a prolongation of one or two inches towards the scrotum. The aponeurosis of the external oblique muscle is divided from the external ring to the level of the internal ring. The whole cord is now dissected free and lifted from its bed, and the arching fibres of the internal oblique muscle being retracted upwards and outwards, it is traced to the internal ring. Two heavy crushing clamps are now applied to the cord, one at the ring and the other just distal to the first. The intervening tissue is now divided with the Pacquelin cautery, the proximal stump being then ligated and allowed to retract. It must be understood that the testicle still lies undisturbed in the scrotum, this being a point of technique I wish particularly to emphasise for premature handling before division of the cord tends to encourage lymphatic embolism. The testicle is now freed from its areolar attachments in the scrotum, and is delivered into the wound by gentle traction on the cord and pressure from below. It is now free and can be removed with the cord attached still clamped to prevent any malignant seeding of the wound. The aponeurosis of the external oblique is repaired, any bleeding points ligated, and the wound closed without drainage. The operative mortality is non-existent, convalescence is rapid, and the patient is allowed to walk on the twelfth day.

It is not necessary to remove any part of the scrotum in the ordinary way, but in those cases in which the growth has spread into the scrotal skin it may be considered right to do a palliative operation to relieve the patient of the fungating mass. There are many cases of superficial carcinoma which are really inoperable—e.g., those of the breast fungating through the skin, filthy malignant ulcers of the tongue—but in which the patient's general condition and especially his or her comfort is greatly improved by some palliative procedure. In such cases the testicle and its half of the scrotum are removed by a racquet incision, the handle of which corresponds to the usual inguinal incision, and the racquet is planned to suit the need of each individual case.

The Radical Operation.

In that I have never performed this operation, it follows that this account is based on the writing of others. The most recent and the most lucid exposition comes from Hinman,[2] and his technique is here outlined:—

Stage 1. Division of the Cord at the Internal Ring.—This step is exactly the same as that already described under simple orchidectomy, with one exception. Before severing the cord the vas is isolated at the ring, clamped, and divided separably, the rest of the cord being dealt with as before.

Stage 2. The Lymphatic Attack (operation on right side described).—The incision is now continued in an upward direction to the tip of the eleventh costal cartilage. It is carried through the muscles down to the peritoneum, which is then pushed inwards by gauze dissection, care being taken to strip the ureter and spermatic vessels, thus leaving them on the psoas major muscle. Beginning at the clamped end of the cord, the dissection is carried upwards and inwards until the spermatic vessels and lymphatics are cleared up to the inferior vena cava. The artery and vein are clamped and divided high up. The glands are then dissected with great care from the surface of the vena cava and from the groove between it and the aorta. The mass is now free and is removed.

Stage 3. Removal of the Vas.—Attention is now turned to the vas, the pelvic peritoneum being stripped up from the lateral wall. The vas is traced to the neighbourhood of the bladder, where it is divided wth the cautery.

Stage 4. Removal of the Testicle.—The final stages are as described under the simple operation, but a drain of rubber tissue must be inserted in the area of retro-peritoneal dissection for 24 hours. The incision is closed with care in layers.

Case for the Simple Operation.

It has been stated that the radical operation is not generally practised, and I have already indicated my opposition to it. It is obvious that very strong reasons must be brought forward to allow the abandonment of all the usual laws of the treatment of malignant tumours, and to set the seal of general approbation on a limited operation. Certain aspects of this unusual problem must be criticised separately.

1. *Feasibility of Complete Removal of the Primary Lymphatic Field.*—If the radical operation is to be justified, it must be proved that it is within the realms of surgical possibility to remove completely the primary lymphatic field without grave injury to vital structures. Jamieson and Dobson's description, which is supported by my own injection experiments, shows quite clearly that on the right side the glands primarily involved lie on the anterior surface of the inferior vena cava and in the groove between it and the aorta; and the dissection must extend from the level of the renal vein to the termination of the common iliac artery. On the left side the glands affected will lie to the left of, and on the anterior surface of the aorta, and bear an intimate relationship to the origin of the inferior mesenteric artery, and the extent of the dissection is as wide as that on the right. Further, the spermatic vessels and the testicular lymphatics are fairly firmly attached to the posterior surface of the peritoneum, and when the latter is pushed inwards during the operation the vascular lymphatic chain has to be dissected off the peritoneum. In so doing there is considerable danger of rupturing the fragile lymphatics and so seeding the wound with malignant cells if present.

It does not need a long memory on the part of any surgeon to picture the difficulties encountered in stripping carcinomatous glands off the internal jugular or the axillary veins. These veins can, however, be ligated with impunity, but the prospect of injuring the vena cava is not one to be faced with equanimity. The left-sided operation presents another grave possibility, for the affected glands are surrounding the origin of the inferior mesenteric artery. Hinman claims that the danger of tying this artery has been over-estimated, but I submit that in the human subject he has no grounds whatsoever for any such statement, particularly as in one case he did tie this artery and the patient died. For these reasons I am convinced that it is impracticable to remove completely the primary lymphatic field. Jamieson and Dobson expressed the same opinion in 1910, and in the last edition (1921) of Sir John Bland-Sutton's "Tumours, Innocent and Malignant" occurs this sentence: "My experiences of the operation leads me to agree with Jamieson and Dobson that the complete removal of the lymphatic area around the mesenteric and renal vessels is impracticable."

2. *Present Position of the Surgery of the Carcinomatous Lymphatic Glands.*—If the results of operative methods for carcinoma in general showed brilliant success and a high percentage of cures, it would be our bounden duty to elaborate some method which would overcome the difficulties enumerated above. But it cannot be gainsaid that there is widespread dissatisfaction with the results of operations for malignant disease. It is recognised that early cases do well, largely because no lymphatic involvement has occurred, but I think there are but few surgeons who will not give a bad prognosis when lymphatic dissemination is known to have taken place. I suggest that, amongst those who are earnestly considering this grave subject, many are coming to believe that once carcinomatous involvement of the glands is present, surgical procedures, however extensive, hold out but a faint hope of eradicating the disease completely. The trend of surgical opinion is reflected in the concluding paragraph of Clayton-Greene's[3] article on carcinoma of the tongue in Choyce's "System of Surgery." The modern operation for carcinoma of the tongue cannot be described as

a radical operation. Again, Lockhart-Mummery's brilliant perineal operation for carcinoma of the rectum cannot claim radical status. And lastly, we have the revolutionary doctrine of Douglas Quick,[4] who maintains that the outlook is made definitely worse by an attack on the lymphatics, because this leads to implantation of the growth of the cellular tissues, a more rapidly fatal condition. I am of opinion that an investigation along these lines is now urgently required.

3. *Analysis of Results.*—My contentions must necessarily fall to the ground unless I can bring forward results as good as those following the extensive operation. The best paper on this subject is by Hinman and others working with him. I shall therefore contrast his results and my own.

Hinman reports 79 cases with the following results:

Operative mortality	10 = 12·6 %
Deaths from metastasis	24
Alive with metastasis	6
Alive and well	34 = 43·0 %
Lost or incomplete data	5

These can be criticised under several headings.

Group 1A consists of 9 cases in which glands were palpable clinically before operation.

Group 1B consists of 13 cases in which the glands were so extensive as to be inoperable.

Group 2A consists of 25 cases in which no metastases were found in the glands removed.

Group 2B consists of 26 cases in which metastases were found.

Group 3. Six cases with incomplete data.

In Group 1A eight patients are dead and one alive with metastasis. This seems sufficient to lay down the principle that all cases with palpable glands before operation are definitely inoperable. It seems reasonable to suggest that the 22 cases of Group 1 were subjected to the radical operation quite unnecessarily with an operative mortality of 22·7 per cent. In Group 2A no metastases were found in the glands, and again the necessity for the radical operation is at least doubtful. There remains the group of 26 cases with metastases in the glands—the crux of the whole argument, for these must have all died eventually from a local orchidectomy. Hinman lays great stress on the fact that of these patients four are alive after four years and he claims in them a cure. Against that has to be placed a 12·6 per cent. operative mortality, which is a very considerable one.

I have been able to collect 23 cases from the records of the past 14 years at St. Mary's Hospital. Every effort has been made to trace these patients, and all of those alive and well except one of the most recent ones has been seen personally and thoroughly examined. My results in detail are:—

A. Cases treated by radical operation	1
Dead	1
B. Simple orchidectomy	22
Untraced	4
Dead	5
Alive with metasta	2
Alive and well	11 = 50 %

Analysis of five deaths from simple orchidectomy:—

Palpable metastases at time of operation	1
,, ,, + scrotal involvement	1
No palpable metastasis	1
Lived for 7½ years (cause of death unknown)..	1
Lived for 4½ years and died of pulmonary and laryngeal tuberculosis	1

Analysis of two alive with metastases. Both had palpable metastases, and a purely palliative operation was performed in each case to avoid threatened fungation through the skin of the scrotum.

Analysis of 11 alive and well:—

After 10¼ years	1	After 3½ years	1
,, 8½ ,, ...	1	,, 18 months	3
,, 4½ ,, ...	1	Less than 12 months ..	2
,, 4 ,, ...	2		

Results contrasted:—

	Hinman and others.	Author.	
Number	79	.. 22	
Operative mortality	10 (12·6 %)	.. Nil.	
Cases alive and well	34 (43·04 %)	.. 11 (50 %)	59 %
Cases alive for over four years, but dead from other causes	—	.. 2* (9 %)	

Of the two cases marked with an asterisk, one died 7½ years after operation from causes unknown, and one died 4½ years from tuberculosis of the lungs and larynx. As Hinman claims four years as the criterion for cure I may safely claim 13 cases. The points needing emphasis are that the radical operation has a serious operative mortality, whereas the simple orchidectomy has none. Moreover, the results of a local operation seem in no way inferior, but rather better; indeed, a recovery-rate of over 50 per cent. in malignant disease compares very favourably with the results of most carcinoma.

Auxiliary Measures.

In those cases which have palpable metastases, certain auxiliary methods of treatment must be considered in order that the patient may be given every possible chance.

(*a*) *X Rays.*—Deep radiotherapy has advanced considerably in the last few years, and it is now considered that localised growths can be attacked with some hope of success. Unfortunately, secondary growths from the testicle cover a wide area and lie very deeply. There is necessarily a limit to the X ray dosage which cannot safely be passed. The full skin erythema dose is so reduced when it arrives at the juxta-aortic glands that its therapeutic effect is small. Attempts may be made to "cross-fire" the growth from many angles, so reducing the danger of skin injury, but when this is done the cumulative dose reaches such a high degree that damage to the intestine cannot be prevented if a full therapeutic dose is to reach the glands. It is therefore not feasible to do much with X rays, an opinion confirmed by Orbaan.[5]

(*b*) *Radium.*—Precisely the same remarks apply to the results of radium therapy when applied over the skin. But radium implantation holds out slightly brighter prospects. A case reported by Taylor is interesting in this respect. A doctor had a malignant retained abdominal testicle with secondaries in the left iliac fossa, with compression of the vessels and œdema of the leg. Radium implantation gave great relief and enabled him once again to lead an active life. But 18 months later there were recurrences in the neck and elsewhere. Barringer and Dean claim moderate results, but Dr. Hayward Pinch tells me that he would hardly expect any really good results from radiotherapy in such deeply-placed metastases.

In conclusion, I have to thank my colleagues on the staff of St. Mary's Hospital for allowing me to use the material found in the clinical records. I have presented my results in a series of cases of simple orchidectomy, and have brought forward grounds to show that it is not a practicable, and therefore not a justifiable, procedure to attempt to remove the lymphatic field. A simple orchidectomy will cure a large percentage of cases if these are seen early enough. The population need educating to the fact that any enlargement of the testicle demands an immediate investigation as to its nature. The quotation at the beginning of this article emphasises a fact which is almost universally overlooked. While carcinoma and all other forms of malignant disease remain local, a purely local removal is alone required for success, but once the disease has begun to spread surgical procedures, no matter how extensive, show a very poor percentage of successful cures.

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AUTO-HÆMAGGLUTINATION IN A CASE OF PERNICIOUS ANÆMIA,

WITH SUBACUTE COMBINED SCLEROSIS.

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THE agglutination of a person's red blood corpuscles y his own plasma or serum—i.e., auto-agglutination –would appear from the literature to be of rare ccurrence in man. The case we record below was nder the care of Dr. John Owen at the Liverpool loyal Infirmary, and we are greatly indebted to him or permission to investigate and record it.

Brief History and Description of Case.

S. G., male, aged 52 years, married, had one child who ed at 9 years of age from "wasting." His wife is healthy id has had no miscarriages. Family history negative. o previous serious illnesses. For 15 months he has had iræsthesiæ of whole body, but especially of legs and et, and gradually increasing weakness of legs and loss of iergy.

On examination the typical features of pernicious anæmia ssociated with subacute combined sclerosis were present: mon-yellow tint, marked pallor, little wasting, typical glossitic" tongue, marked weakness with loss of joint, uscle, and vibration sense in upper and lower limbs, creased deep reflexes and bilateral extensor toe response, c.

The blood findings on admission were: Red corpuscles, 400,000 per c.mm.; hæmoglobin, 44 per cent.; white rpuscles, 8000 per c.mm.; differential count (per cent.) 1 400 white cells: polymorphs, 45·5; large lymphocytes, ; small lymphocytes, 45·75; mononuclears, 1·25; eosino- ils, 1·25; basophils, 0·5; myelocytes, 0·75. During this unt three normoblasts and four megaloblasts were seen. n Arneth count (per cent.) of the polymorphs gave: ass (1), 9·3; (2), 21·4; (3), 40·1; (4), 20·9; (5), 8·3; rneth index, 50·75. Blood film: Marked anisocytosis ith megalocytic predominance, poikilocytosis and poly- iromatophilia. No punctate basophils seen. Normoblasts id megaloblasts present.

Wassermannn reaction: Strongly positive. Fragility red cells and coagulation time of blood (method of Dale id Laidlaw): Normal. Van den Bergh reaction: Negative rect; positive indirect reaction. Urine: Excess of urobilin d urobilinogen. Fæces: No parasites; no occult blood. actional gastric analysis: Complete achlorhydria with very low total acidity (10 c.cm. N/10 HCl per cent.); blood nor bile.

Auto-agglutination was noticed during the routine blood amination. In diluting the blood for a cell count and in e preparation of blood films the phenomenon declared elf. That it was due neither to the apparatus nor to the lutions used was apparent from its repeated occurrence th new apparatus and fresh solutions. Moreover, on the me glass slide on which the auto-agglutination occurred th S. G.'s blood, blood from other patients remained n-agglutinated.

In order to study further this phenomenon of ito-agglutination, blood was withdrawn by venous incture. A portion of this was allowed to clot and e serum collected; the remainder was citrated to event clotting, immediately centrifugalised, and e red cells carefully washed with warm saline 7° C.).

Results.

The following tables show the effects of varying lutions of S. G.'s serum on his own cells and those other groups at body and room temperature. ie cells and serum of pure members only of the four ood groups were used in this investigation.

The red cells of S. G. were not agglutinated by the serum any normal blood group either at body or room nperature.

Tables showing effect of S. G.'s serum (diluted with normal saline) on the cells ($2\frac{1}{2}$ per cent. suspension in normal saline) of the blood groups I., II., III., and IV., (A) at 37° C. and (B) at 12° C. (room temperature).

	A.					B.				
Cells of group—	Dilution of S. G.'s serum.					Dilution of S.G.'s serum.				
	1/2	1/6	1/18	1/54	1/162	1/2	1/6	1/18	1/54	1/162
I. ..	+ + +	+ +	+ +	+	+	+ + +	+ + +	+ + +	+ +	+ +
II. ..	+ +	+ +	+	+	+	+ + +	+ + +	+ +	+	+
III. ..	+ +	+ +	+	+	–	+ + +	+ +	+ +	+	–
IV. ..	–	–	–	–	–	+ + +	+ + +	+ + +	+ +	+
S. G. ..	–		–	–	–	+ +	+		–	–

+ + +, complete agglutination; + +, marked but not complete agglutination; +, slight but definite agglutination; –, no agglutination.

Certain facts which emerge from a study of the above are:—

1. The patient belongs to blood group IV., and his serum contains the iso-agglutinins for groups I., II., and III.
2. The power of auto-agglutination does not reside in the red corpuscles, since S. G.'s cells are not agglutinated by the serum of a normal member of any blood group.
3. Auto-agglutination occurs only at low temperature. If tubes containing S. G.'s blood be gradually cooled auto-agglutination begins to appear at 22°–26° C.; if, after cooling, the same set of tubes be gradually warmed, auto-agglutination remains in some degree until 32°–34° C. is reached, thus demonstrating the reversibility of the reaction.
4. (*a*) The agglutinating power of S. G.'s serum is for all groups greater in the cold than at body temperature. (*b*) The agglutinating power in the cold of S. G.'s serum is greater for cells from normal members of his own group (IV.) than for his own cells.

Additional facts we have determined are:—

5. The auto-agglutinin of S. G.'s serum agglutinates the cells of—
   (*a*) Rabbit (dilution of serum 1/486 +).
   (*b*) Guinea-pig (dilution of serum 1/162 +).
   (*c*) Sheep (dilution of serum 1/18 +).
   (*d*) Goat (dilution of serum 1/18 +).

Other workers have shown, and our observations confirm, that this agglutination is distinct from that due to hetero-agglutinins normally present in serum.

6. Auto-agglutination is associated with the removal from the serum, by the red cells, of the auto-agglutinin*; for if S. G.'s serum be mixed with a suspension of his cells in the cold, allowed to stand and the mixture be then centrifugalised, the supernatant fluid does not contain the auto-agglutinin, though the iso-agglutinins for groups I., II., and III., can be demonstrated.
7. There is no evidence of auto-phagocytosis in S. G.'s blood (Prof. E. E. Glynn); nor of any auto-hæmolysis.

Discussion.

Clough and Richter,[1] in their paper A Study of an Auto-agglutinin occurring in a Human Serum, have recorded fully a case of chronic mitral endocarditis with broncho-pneumonia which showed this phenomenon. They make no reference, however, to its occurrence in trypanosomiasis, clinical and experimental, probably the commonest condition by far with which auto-agglutination is associated, and they appear to have overlooked a paper by Warrington Yorke,[2] in which are recorded fully and accurately the effect of temperature on auto-agglutination, the adsorption of agglutinin by the red cells, the reversibility of the process, and the effect of the agglutinin on the cells of other animals.

Clinically, auto-agglutination has been observed in the following conditions:—

1. Trypanosomiasis (Kanthack, Durham, and Blandford [3]; Christy [4]; Dutton and Todd [5]; Martin, Leboeuf, and Roubaud [6]; Yorke,[2] &c.).
2. Cirrhosis of the liver (Reitmann [7]; Klein [8]).

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[*] Adsorption of agglutinin by the cells: this is supported by the reversibility of the process—i.e., on warming, the auto-agglutinin is liberated.

3. Relapsing fever (Todd [9]; experimentally in rats by Nattan-Larrier [10]).
4. Syphilis (Dudgeon [11]; Todd [9]).
5. Long-standing epilepsy (Dudgeon [11]).
6. Certain forms of icterus due to hæmolysis (Martin and Darré [12]).
7. Broncho-pneumonia with chronic mitral endocarditis (Clough and Richter [1]).
8. Marked secondary anæmia due to hæmorrhage from hæmorrhoids; and heart disease (Kliger [13]).
9. Pernicious anæmia with subacute combined sclerosis and a positive Wassermann reaction (Cohen and Jones).

Apart from trypanosomiasis, in which auto-agglutination is said to occur in the large majority of cases, the literature contains references to only one or two cases of the above conditions in which auto-agglutination was found, and some of these are doubtful. One of us (H. C.) has examined the bloods from 300 individuals since the occurrence of our case, but not one showed the marked auto-agglutination found in S. G. Those examined included 11 cases of pernicious anæmia—6 with subacute combined sclerosis, 4 cases of cirrhosis and syphilis of the liver, 3 cases of hæmolytic icterus, and many severe secondary anæmias. Forty of these cases were associated with a positive Wassermann reaction. We must conclude that auto-agglutination is thus a rare phenomenon, not constantly associated with any pathological state.

The daughter of Clough and Richter's patient [1] showed auto-agglutination in her blood. They suggested that since it was present in both mother and daughter, the phenomenon is an hereditary peculiarity. The only living relations of our patient, an elder brother and his son, showed no auto-agglutination, both of them being normal members of group IV. That auto-agglutination can be acquired is shown not only by its very frequent occurrence in trypanosomiasis, but also by the experimental work of Rous and Robertson,[14] who were able to induce auto-agglutination in rabbits by the repeated withdrawal of moderate quantities of blood.

In view of this experimental work we examined the blood of the following five donors:—

1. R. H. P., who between June, 1921, and August, 1924, had on each of six occasions given one pint of blood.
2. T. H., who between February, 1922, and July, 1923, had on seven occasions given one pint of blood.
3. W. L., who had in January, 1921, also in May and June, 1924, given one pint of blood.
4. W. H., who had in March, 1923, given one pint of blood.
5. W. H. E., who during the past three years had almost weekly given 20–50 c.cm. of blood for experimental purposes, and in July gave one pint of blood as a donor.

All these cases proved negative, no trace of auto-agglutination being found.

Of the mechanism of production and the chemistry of the auto-agglutinin we are ignorant. Its occurrence in anæmias has led to the suggestion that the auto-agglutinin results from the inoculation of the organism with the products of disintegration of its own erythrocytes, but this seems negatived not only by the very rare occurrence of auto-agglutination in anæmic states, but also by the impossibility of experimentally producing an auto-agglutinin in the blood of an animal by injection of its own red cells.

Another suggestion, that the auto-agglutinin develops in direct response to the stimulus of a pathogenic agent, is of interest in view of the similar protozoal ætiology of trypanosomiasis, relapsing fever, and syphilis, conditions in which auto-agglutination has been clinically described. The increased acidity of the blood said by Nierenstein [15] to occur in trypanosomiasis has been suggested by Breinl and himself to be the cause of auto-agglutination in that disease.

Can auto-agglutination be looked on as part of the body's resistance to disease? Since the phenomenon does not occur at body temperature, any effect it will exert is probably at the surface. Its only value here would seem the diminution of bleeding from small wounds by plugging the vessels with agglutinated cells, and thus preventing the further impoverishment of the blood volume in severe anæmias.

Practically recognition of the phenomenon of auto-agglutination may account for some of those cases, which, when grouped by the glass-slide method with the sera of groups II. and III., are said to show a change in group from IV. to I., when typed at a later date. Thus, had S. G. been tested by this method, he would have been called group I., because his own serum would agglutinate his erythrocytes even when mixed with serum of group II. or III. The consequences of transfusing a patient with blood from a donor who shows auto-agglutination is not likely to have serious effects, provided the blood be slowly injected, since the body temperature prevents the occurrence of the auto-agglutination.

Whilst, therefore, the practical advantages which result from a study of auto-agglutination in human blood seem small, its scientific interest is considerable.

Note.—Since the above paper was written a further case of auto-agglutination in pneumonia is recorded by E. Claveaux and Pérez Sánchez.[16] The phenomenon was noticed during convalescence from the disease. The acute attack had been treated with injections of patient's own blood.

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Clinical and Laboratory Notes.

A CASE OF
DUODENAL ULCER IN AN INFANT.

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DUODENAL ulcer is regarded as a rare condition i infants, the diagnosis of which is difficult and seldo made during life. Dr. Donald Paterson,[1] in a revie of the literature, states that of 100 reported cas there were only three in the United Kingdom, an to these he adds two of his own. The following cas therefore, which occurred at the Queen's Hospital f Children, seems worthy of record.

R. C., a male infant aged 5 months, was admitted o Nov. 1st, 1922. He was the first child of young healt parents, and there had been no previous miscarriages. I was a full-time child and had been bottle-fed on vario foods, but never throve except during his third and fourt months. Before coming to hospital he had been attendi a welfare clinic, where his feeds were carefully regulate There had always been a tendency to vomiting, and h feeds had been reduced in amount to 1 oz. every two hou and he usually vomited a little of each. He had scream after food until a few days before admission. Flatulen and constipation were very troublesome.

Condition on Admission.—He was a small wasted chil weighing 7 lb. 13 oz., with no obvious organic disease. I continued to be constipated and vomited slightly at tim generally after feeds, and had lost 5 oz. in weight by Nov. 6t n the evening of the 8th he vomited bright blood-stained uid and was collapsed. A stool seen at this time had some nelæna-like staining. The next day he seemed well till vening, when he suddenly collapsed and died.

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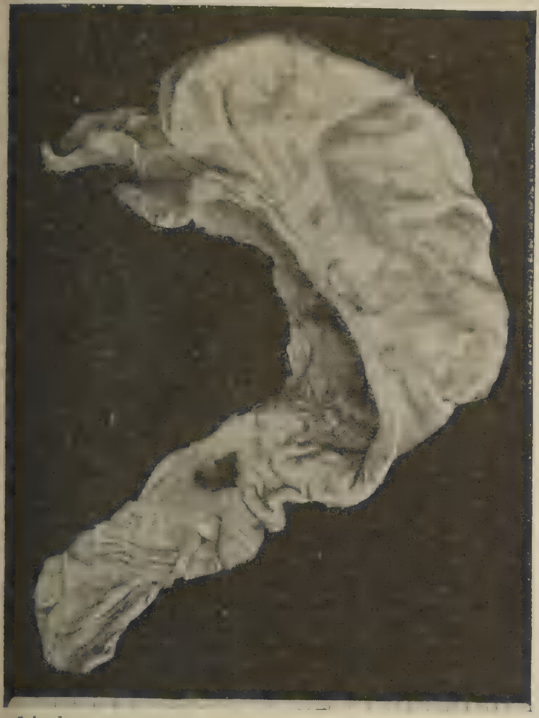
[1] THE LANCET, 1922, i., 63.

Post-mortem Examination.—A punched-out ulcer was ound in the first part of the duodenum, situated on the osterior wall about ¼ inch from the pyloric sphincter. It



as about three-eighths of an inch in diameter, irregular in iape, with slightly undermined edges. The floor consisted submucous tissue on which could be seen a small vessel om which the bleeding had occurred. There was no ickening and very little evidence of inflammatory reaction the surrounding structures and no peritonitis. Altered ood was present in the lower part of the ileum, and there as slight injection of the Peyer's patches, but otherwise othing abnormal was found.

I am indebted to Dr. C. Alice King for permission to ublish the case and the accompanying photograph.

A CASE OF NTESTINAL OBSTRUCTION COMPLICATING PREGNANCY.

BY JOHN C. JEFFERSON, F.R.C.S. ENG.,
HON. SURGEON, ROCHDALE INFIRMARY.

THE following case seems to be of sufficient interest justify its being recorded.

Mrs. L., aged 27, was operated upon in 1916 for acute osalpinx with pelvic abscess on the right side. The right be and ovary were removed and the abdomen drained. e made a good recovery, and three years later gave birth a child without any complication.

I was asked to see her on Feb. 12th last, her doctor having agnosed acute intestinal obstruction. She was now again egnant, about seven months. Until 36 hours before I saw r she had been in good health. The present illness had mmenced with acute pain in the right iliac fossa; she had mited immediately, and vomiting had been incessant ever ice. The bowels had not been opened since the beginning the illness despite aperients and enemata. The temperature as 98° F., pulse 120.

On examination the abdomen presented a linear scar of the evious right rectus incision. The uterus, which reached the vel of the umbilicus, was pushed well over to the left side a rounded tympanitic swelling occupying the right iliac ssa. The upper abdomen was also distended, and peristaltic ovements were observed.

Operation.—She was at once removed to hospital, where I opened the abdomen through an incision parallel to and a little outside the previous one. It was then found that the tympanitic swelling referred to above was caused by a coil of distended small intestine which was strangulated between a stout peritoneal band and the uterus, the band passing from the right broad ligament to be attached to the uterus at the site previously occupied by the utero-tubal junction. On relieving the strangulation I found the coil to consist of the last 18 inches of the ileum, the ileo-cæcal valve having escaped inclusion by half an inch. The gut was in such poor condition, and I doubted its viability so much, that I judged it safest to resect. This was done, the ileo-cæcal valve, which was somewhat œdematous and ecchymosed, closed, and an end-to-side anastomosis of ileum and cæcum performed.

The patient made a good recovery and the pregnancy continued to full term.

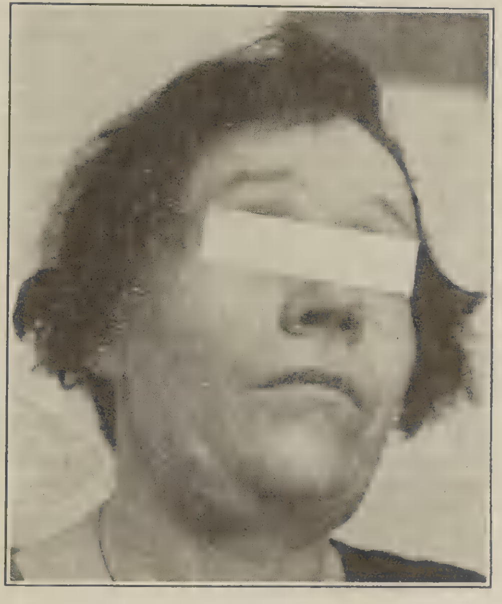
The peritoneal band was almost certainly a product of the old pelvic inflammatory trouble of six years ago. It appears most likely that while the uterus remained normal in size the band was lax, but with the rise of its uterine attachment during pregnancy it became taut and so an agent of strangulation. It is somewhat remarkable that it caused no trouble during the previous pregnancy.

A BILATERAL TUBERCULOUS INFECTION OF THE SUBMAXILLARY SALIVARY GLANDS.

BY H. J. SIMSON, M.B. EDIN., D.P.H.,
LATE TUBERCULOSIS MEDICAL OFFICER, SOUTHAMPTON;
AND
A. MASSEY, M.B., D.P.H. LEEDS,
ASST. M.O.H., SURREY C.C.

THIS condition is, perhaps, of sufficient rarity to warrant the description of a seemingly typical case, seen recently at the Southampton Municipal Dispensary.

The patient, a woman, aged 32 years, suffered from pneumonia in September, 1922. First seen at the Municipal Dispensary on Dec. 27th, 1922, when the following symptoms were elicited—viz., cough, expectoration, shortness of breath, lassitude, poor appetite, and vague pains in chest. Physical examination on that date revealed extensive tuberculous disease throughout the left lung, with cavitation at its apex. The upper lobe of the right lung was also involved. There was no enlargement of glands of neck; hypertonicity of the sternomastoids was noted, and the tonsils appeared normal. In the sputum were many tubercle bacilli. Weight was 6 st. 3¾ lb.



Bilateral tuberculous infection of submaxillary salivary glands.

Patient was admitted to Borough Sanatorium on Jan. 4th, 1923, and discharged therefrom on June 11th following. During the whole of this period pyrexia was a notable feature; no improvement was effected in the lung condition, and weight was 5 st. 12 lb. on discharge. Since then the lung condition has become progressively worse, and repeated sputum examinations have all proved positive. Some six weeks prior to discharge from sanatorium the patient first complained of a small swelling on each side of the under surface of the lower jaw. The swellings slowly enlarged, until they assumed the conspicuous proportions shown in the photograph, taken on March 24th, 1924. The swellings are symmetrical, hard, and somewhat irregular on palpation, and tender to firm pressure. They are essentially chronic in character. There is no enlargement of lacrymal or parotid glands; the teeth are perfectly sound, the throat and tongue present a normal appearance, and the Wassermann reaction is negative.

A diagnosis was made of tuberculous infection of submaxillary salivary glands.

Medical Societies.

HUNTERIAN SOCIETY.

A MEETING of this Society was held on Oct. 20th, when Mr. H. W. CARSON gave his Presidential address, entitled

THE WATERSHED OF MEDICAL PRACTICE.

He took as his theme the factors influencing the decision as to whether, in the treatment of any patient, operative or non-operative measures should be adopted—factors as slight sometimes as the pebble's edge or slanting stone which may decide the course of a stream The decision as to which path to choose had become more and more difficult as the science of medicine and surgery had developed. It was not long ago when at our hospitals medical and surgical cases were so well differentiated that they could be, and were, sorted out without difficulty by the porter in the casualty department. Nowadays this work had to be done by a skilled physician trained to make rapid diagnosis, and even then references to other departments are common. The scope of abdominal surgery had been immensely increased, and it was here chiefly that one saw the conflict between the operators and the non-operators. Not without a struggle did the physicians relinquish the acute abdominal patient. Mr. Carson said that in his own student days these cases were all admitted under the physicians, who might or might not invoke the aid of their surgical colleagues. It led, of course, to delay and loss of life, and gradually, as operation began to be accepted as the only treatment for these abdominal emergencies, the surgeon was summoned more and more quickly, and eventually, with a great wrench, the acute abdominal case was admitted under the surgeon. In the treatment of the myriad surgical diseases which give rise to indigestion, again, the surgeon had thrust forward a formidable salient. The advance had not been without its serious failures and withdrawals. The attack started with the discovery that the appendix might be responsible not only for the gravest forms of peritonitis, but that in its more or less quiescent stages it could account for much ill-health, not only in the abdomen, but elsewhere. Then followed a discreditable period when appendicectomy was exploited to such an extent that even the lay press ridiculed it.

Diseases of the Intestinal Tract.

The next important move was into the treatment of diseases of the stomach, where the advent of the surgeon did much to sweep away the fog which had settled around the word "indigestion." He came at the right moment, at the time when the biochemist and the radiologist were racing to his help. It was indeed a happy conjunction. But here again the operation of gastro-jejunostomy was hailed as a panacea, and even to-day the memory of the unfortunate results which followed the performance of this operation in unsuitable cases led occasionally to a refusal to adopt it in some cases where it would be the ideal treatment. A little later all ills were ascribed to defects in our "cesspool" system of intestinal drainage and our teeth were all condemned, with the result that short-circuiting and colectomy were done indiscriminately and teeth were extracted by the million. But even apart from these extreme cases there were conditions about which there was an honest difference of opinion. For example, a patient was sent to Mr. Carson by a medical man, with a diagnosis of gall-stones. With this diagnosis he agreed, and an X ray picture showed the stones quite clearly. He advised operation, but the patient wished first to consult a distinguished physician. The physician agreed with the diagnosis, but deprecated an operation, since in his opinion the attacks, if they recurred, would yield to simple treatment; in short, he advised the patient to put up with the slight inconvenience which these attacks might entail. Here there was a curious variation of opinion. Surgeons were convinced that a residual gall-stone was a perpetual menace; serious complications might occur at any moment, and experimental evidence proved gall-stones to be an exciting cause of cancer of the gall-bladder. One could only believe that the physician for some reason had come to the conclusion that the risk of operation was so great in this case that it was better to chance the complications and put up with the disability. The treatment of duodenal ulcer was another problem in the solution of which surgeons and physicians differed. In the case of chronic gastric ulcer there was less divergence of opinion, and in Mr. Carson's opinion operative treatment was steadily gaining ground. He thought this could be explained by the serious disability incurred, the rarity of quiescent periods of good health, the very serious and crippling complications, and the very real menace of cancerous degeneration. But in one complication of chronic gastric ulcer surgeons themselves disagreed as to the wisdom of operation, that is, in the treatment of severe hæmorrhage. At the present time there was a majority against operating for the control of hæmorrhage. There was plenty of evidence that such an operation might have to be very extensive—for the much-extolled gastro-jejunostomy was valueless in such cases—and had a heavy mortality, while, on the other hand, the actual mortality from hæmorrhage was known to be small. It seemed the better practice to tide these patients over the hæmorrhage and to do the curative operation later.

Exophthalmic Goitre.

Another disorder in which surgery held out an increasing chance of cure was exophthalmic goitre, and here was perhaps the ideal association of physician and surgeon. It had long been recognised that exophthalmic goitre was very resistant to medical treatment, and when the subject was thrashed out at the Royal Society of Medicine in 1912, a mortality under medical treatment of 25 per cent. was accepted; at most 10 per cent. were cured, and that only after years of invalidism. The surgeons estimated the mortality of cases treated by operation at 5 per cent. or less, and the prospect of cure at between 70 per cent and 80 per cent. Since then more work had been done and it was beginning to be recognised that there was a prospect of cure by medical means if treatment could begin in the first six months of the illness. Therefore, surgery was not employed during this period, nor was it considered wise to operate during an exacerbation. Here there was no antagonism between operators and non-operators, but a realisation that a disease might require different treatment at different stages of its progress. There were, however, certain difference of opinion, not in surgical versus medical treatment, but in non-operative versus operative treatment of a purely surgical disease. Not very long ago every surgical ward had n it patients who had been operated upon for tuberculous disease of the bones or joints. Where were hose cases now ? They had learnt by bitter experience that operation was not the way to treat any but a quite small minority of these cases, and, with the ncrease of institutions where time could be given o conservative methods, such as the Treloar Hospital at Alton, a new hope was arising for these unfortunate victims of surgical tuberculosis. Many were being restored to health with useful limbs who formerly would have been condemned to mutilation or even death.

Physicians and Surgeons.

Reverting to his text, Mr. Carson proceeded to onsider what pebble's edge influenced one doctor o become a physician and another to become a urgeon. The distinction between the two branches of our science was becoming less pronounced. It was now accepted that the problems of the surgeon were no less complex than those of his medical olleague, and that the surgeon was not merely the raftsman who exercised his art at the bidding of the uperior branch of medical learning. It was to be hoped that the apparent antagonism between phyician and surgeon might merge into a real collaboraion of medical and surgical science, since the same isorder might require at its different stages the most iverse treatments.

SOCIETY FOR THE STUDY OF INEBRIETY.

COCAINE ADDICTION.

THIS Society held a meeting at the house of the Medical Society of London on Oct. 14th. Sir WILLIAM WILLCOX, the President, was in the chair.

Prof. W. E. DIXON read a paper upon Cocaine Addiction. He first referred to the immemorial ractice among the Indians of the West of South America of taking coca leaves as a stimulant in mental nd physical fatigue, a practice which survived to his day amongst the natives of Peru. General Miller sed coca leaves for his army in his campaign of 1824 nd was much impressed by their value, whilst Montegazza, in 1859, stated that he obtained great muscular and mental energy from a small dose of an nfusion of the leaves and " unthinkable beatitude " from a larger one. No such pleasant effects had ollowed an injection of 1½ gr. of cocaine in the ase of the speaker, but, on the contrary, he suffered rontal headache, excitement, increased reflexes, and nsomnia. Others had recorded similar experiences with cocaine, but it was possible that the alkaloid did ot reproduce the whole effect of the fresh coca leaves.

ction of Stimulants upon the Central Nervous System.

Cocaine had an action on the central nervous ystem which corresponded with a stimulation of the hole cerebral cortex, so that after injection into nimals convulsions could be produced by electrical imulation of the cortex, which were abolished by vering the crura cerebri. The dose per unit of bodyeight necessary to produce convulsions in animals as proportioned to the degree of development of the rebral hemispheres. In man the exaltation of eling and increased muscular and mental vigour were ue to the stimulation of the cerebral cortex. Other rugs were known which produced similar effects ; bsinthe, picrotoxin (a fish poison), camphor, atropine, nd nutmeg were examples. Devotees of absinthe ecame restless, excitable, tremulous, and ataxic, nd sometimes suffered from delusions and epileptiorm convulsions with, later, permanent derangement intellect, just as occurred with cocaine. Atropine, though having similar effects, did not, as a rule, give se to a " habit " on account of its unpleasant sidefects, while the action of caffeine was much more ild and prolonged and was chiefly confined to the gher intellectual centres, the motor areas being rely influenced.

Acute Cocaine Poisoning.

As a rule, ½ gr. of cocaine produced little effect and 1½ gr. was well tolerated by ordinary persons. The fatal dose varied from 8 to 23 gr., but as with other drugs which acted upon the central nervous system the effect of cocaine in different individuals was uncertain. Death was due to shock from sudden paralysis of the central nervous system, for while the effect of a small dose was to stimulate, over-stimulation by a large dose produced the reverse effect—namely, paralysis. This was an everyday maxim which was not sufficiently appreciated in the case of collapse and death from the absorption of cocaine in a susceptible person. In every case of death from the use of cocaine or similar substances as local anæsthetics, the symptoms were strikingly like those produced experimentally in animals. Prof. Dixon added two comments: first, that death was always due to sudden absorption ; when steps were taken to render absorption slow, as by the use of a tourniquet, the alkaloid was apparently adsorbed locally to a great extent. This was the reason for the addition of adrenalin to cocaine solutions for local anæsthesia ; the principle was a good one, though adrenalin actually added to the toxicity of the solution when it was absorbed rapidly. The second comment was that cocaine was much more dangerous in strong than in weak solutions, for the latter favoured innocuous adsorption into the tissue colloids. It was well recognised that tolerance to cocaine could be rapidly established by practice in man, so that a dose of 20 gr. could be taken without ill-effect after a month. This effect was confined to man ; in laboratory animals such tolerance could not be established.

Effect of War Conditions on the Cocaine "Addict."

Before the war cocaine was rarely used by the " addict " except in conjunction with morphia. Generally the morphine habit was contracted first ; more rarely the addict first became enslaved to cocaine. The reason for this was that the symptoms of one drug habit were relieved by the other ; some physicians even prescribed cocaine as a means of escape from the morphia habit. In many cases the cocaine habit was contracted from the legitimate use of the drug as a nasal spray in hay fever or asthma. The habit was never common in this country, but was more prevalent in America, France, and even India ; in the first country it was a social problem even before the war, and was rapidly increasing in the numbers of its victims. It had been stated that an alarming increase had followed the introduction of prohibition in America, but Prof. Dixon pointed out that the increase had been a steady one over many years, and though doubtless affected by post-war conditions, could not be fairly attributed to the sudden withdrawal of alcohol. In India cocaine taking was confined to opium or ganja addicts, by whom cocaine powder was taken mixed with betel leaves and slaked lime.

A change occurred in the early days of the war. Cocaine users, who took the drug as a rapid intoxicant, became common in Paris where the alkaloid could be readily obtained from habitués of cafés and music halls. The drug was taken either by sniffing the powder or mixed with an alcoholic beverage. Many of the persons who took cocaine were not true addicts, but resorted to the drug only rarely and upon special occasions at " cocaine debauches," running the risk of acquiring the habit without actually doing so. None the less, such persons were a danger to themselves and others, and constituted a serious problem in State medicine. In the speaker's opinion they should be isolated like cases of infectious disease, thus removing a source of infection of others with the cocaine habit.

Once formed the cocaine habit was perhaps the worst of all drug habits, for it led to more rapid mental, moral, and physical degradation than the depressant drugs such as morphine. The morphinist retained some desire for freedom, but the cocainist cared for nothing, his mind was completely bemused.

Cocaine induced insomnia. loss of appetite, dyspepsia, and diarrhœa, and sometimes delusions and deafness. A delusion of feeling a foreign body—sand or worms—under the skin was diagnostic of cocaine. In spite of all this the habit was comparatively easily cured, for even when 10 to 30 gr. a day had been taken, the drug could be completely cut off at once without any ill-effects, whereas a similar withdrawal in the case of the heroin habit would certainly jeopardise life.

Characteristics of Drug Addicts.

Drug addicts were not normal people who had availed themselves of opportunities for indulging in drugs—for normal persons did not derive pleasure from their first experience of cocaine. In 1906 Sir Clifford Allbutt and the speaker, in a joint article, defined the people who took an immediate pleasure from drugs as "neurotics." Quickness and sensibility, acute perception, and alert muscular reaction were qualities of high breeding, but they became morbid when developed in excess in the lower ranges of sensibility without check from the higher controlling centres. When Laséque said, "It isn't everybody who can become an alcoholic," he meant that there must be a pre-existing mental state. The same was even truer of drug takers than of alcoholics, and it was apparent to all who had much experience that drug taking was rather a symptom of a certain type of mental condition than a disease in itself. Proof of this lay in the fact that those who contracted the habit as a result of the use of a drug in disease were much more readily cured than other addicts. The Americans were now discussing whether drug taking was a medical issue or a police problem, since 98 per cent. of the "police cases" of drug addiction were associated with crime or a criminal environment. But the chief of the New York "Narcotic Police" pointed out that drug addicts made poor criminals, being lacking in judgment, self-control, and will power. To treat them all as criminals would, therefore, be as unfair and unsuccessful as was the mediæval treatment of lunatics. The cocaine habit was spreading over the world; it had appeared in France, Germany, Italy, Spain, and England, but was less common in Europe than in America and the East. The narcotic division of the New York police had arrested 8174 drug takers during 1923, of whom 95 per cent. used heroin, either alone or in conjunction with cocaine.

Treatment of the Drug Habit.

Drug addicts fell into two classes, a smaller class who contracted the habit from the legitimate use of a drug to cure pain in disease, and a larger in whom addiction was a sign of neurosis. The first step in treatment was to restore the patient to physical health. The problem of relieving the mental damage then arose, for if the patient were allowed to return to his old associations relapse was certain. Few addicts would come for treatment as long as a supply of the drug was available or until the drug had lost its effect. They might then allow themselves to be "cured" in order to renew the habit with fresh pleasure.

In conclusion, Prof. Dixon made the following propositions: (1) That prosecution of cocaine traffickers should be carried out by all means at our disposal; (2) some form of international control, to prevent illicit importation of cocaine or coca leaves, should be established; (3) as most of our cocaine is prepared in German laboratories, this supply should be controlled at the source; (4) that information should be spread of the gravity and danger of the use of narcotics not only to medical men and medical students, but also to members of the teaching profession.

Discussion.

Dr. H. H. Dale had been told that cocaine taking was a social habit and not, as in the case of morphine, a secret vice, for cocaine was taken not to combat insomnia, but to produce it. Hence cocaine taking was limited to big cities, where it was taken to stimulate the flagging appetite for pleasure.

Dr. A. J. Copeland discussed the action of a numbe
of cocaine substitutes, including butyn and novo
caine, and pointed out that in appropriate doses a
produced convulsions in animals exactly similar t
those produced by cocaine. From his own persona
experience of one of these drugs, he considered tha
they were just as likely to give rise to a "habit
as cocaine itself.

Dr. W. C. Adams was interested in the suggestio
that the effects of coca leaves and of cocaine migh
be different. It was possible that the inherite
psychology of different races might have somethin
to do with the different effects upon them of th
coca leaf.

Dr. Harry Campbell pointed out that a non
toxic substitute for cocaine would be most useful, an
read a letter from Dr. Francis Hare to the effect tha
the cocaine habit was in his (Dr. Hare's) experienc
comparatively rare in this country. Dr. Campbe
suggested that the "neurotic" temperament whic
Prof. Dixon had said was at the root of the cocain
habit might be due to a condition of the blood, an
pointed out that certain habits, such as alcoholism
often exhibited a degree of periodicity. Such
periodicity had been noticed in some cocaine takers.

Dr. O. Inchley felt that the outlook was not
very happy one if the habit was due to a neuroti
mental condition, since that was inborn and no
readily affected by any treatment.

The Rev. H. Goyen (Victoria, Australia) said tha
in Australia they had lessons in schools and college
on the dangers of alcohol and drug habits, but tha
more harm than good was sometimes done by ove
exaggeration of the dangers. He thought that th
real facts as to the causes of the increase in dru
taking in America should be made known, as muc
capital was being made of the increase by those wh
opposed prohibition. His impression was tha
cocaine addicts very rapidly became hopeless soci
derelicts.

Dr. Eleanor Lowry said that it had been suggeste
that in some cases of murders by members of th
Irish Republican Army the men entrusted with th
deed had been "doped" either with alcohol or drug
She believed that, on the contrary, only men wh
were known to be free from any such vice we
selected for such work.

The President remarked that no cases of murde
by cocaine had come under his notice, though suicid
by cocaine was not uncommon. In cases of acut
cocaine poisoning the stomach should be washe
out with a solution of potassium permanganat
The prognosis in the case of cocaine was fairly goo
if this treatment were instituted within an hour
the taking of the drug, since the alkaloid was relativel
unstable and easily broken down. The use of cocain
as a local anæsthetic was by no means free fro
danger—three fatal cases had occurred at his ow
hospital following the use of cocaine in the urethr
He was surprised that more accidents had n
occurred in nose and throat practice, where sol
tions as strong as 10 per cent. and even the pu
powder were occasionally used.

Prof. Dixon replied briefly.

LONDON DERMATOLOGICAL SOCIETY.

An ordinary meeting of this Society was held o
Oct. 15th at St. John's Hospital, with Dr. Knowsle
Sibley, the President, in the chair. Twenty Fello
and visitors were present. The report of the path
logical subcommittee on a case of erythroderm
previously shown, was read. The committee unan
mously considered the case to be one of lymphat
leukæmia. Pathological specimens were shown b
Dr. A. Knyvett Gordon, clinical cases by the Preside
and by Drs. W. Griffith and S. R. Kapoor. Th
cases and specimens were discussed by the Presiden
and Drs. Griffith, Kapoor, Howard Humphris, J. A.
Orlebar, R. F. Fagan, and Knyvett Gordon.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

THE first sessional meeting of this section was held n Oct. 16th, under the presidency of Dr. E. G. RAHAM LITTLE.

Dr. PROSSER WHITE read a paper entitled

Bakers' Eczema: A Clinical and Experimental Inquiry.

e said that in France bakers' eczema was unknown, hile in regard to America a long bulletin issued by ie United States Government did not mention the ondition. It had been known for many years in this ountry that cases of eczema occurred from time to me among persons engaged in the making of bread id confectionery, and the object of the inquiry he t out to make was to ascertain whether this skin ondition was attributable to the flour used or to iy particular ingredient or "improver" incorporated ith it. This dermatitis seemed to trouble confeconers more than it did bakers. When 10 per cent. yeast was employed in bread-making, it was ispected that this might be an agent in causation; it it appeared that workers in dried yeast did not iow any particular incidence of eczema. Neither d water seem to be a cause, though in the experients the addition of water was needed to set up the rmatosis. Another question was as to whether the rocess of bleaching the flour was responsible for the ondition of the skin. Acid calcium phosphate was rgely used in the making of confectionery to replace ie old tartaric acid. Or was the eczema due to otein sensitisation? Dr. White suggested that it ould be interesting to inquire whether people in iese trades who claimed compensation had a imary morbid condition of the skin, so that the sh was merely incidental and not caused by their cupation.

The bleaching of the flour was carried out with tric oxide, sometimes with chlorine. The so-called nprovers and activators increased the hydrogen-ion oncentration in the dough. Millers introduced 1 oz. salox—an ammonium sulphate and ammonium perlphate preparation—into a 280 lb. sack of flour—., 1 part in 4000, and acid calcium phosphate, 1 part 290. The kneading of a full batch of bread occupied to 45 minutes, and the first stage, the dissolving of ie salt, was always done by hand. It appeared that for ie salt to act as a definite irritant it was necessary r it to be on the skin in the form of crystals. Two en and a woman subjected themselves to experiment this and other points, and it was found that an ythematous rash appeared only when the salt was tained on the arm in crystalline form. Into onfectionery, of course, sugar entered largely, but in ealthy persons engaged in this industry it did not ppear to be a cause of dermatitis. Observations were ade by Dr. White, by means of the three volunteers ready mentioned, concerning various kinds of flour, id flours which had been treated in divers ways. s a general result of three days' tests, irritation of the in could be declared to be uncommon. In some ses when the paste was wet there were eruptions, it they remained confined to the site of application, id treatment quickly healed them. Some irritation llowed the application to the skin of acid calcium iosphate, especially if incorporated in untreated branny" flour. It was rare for the baker or the onfectioner actually to handle dough for more than vo hours daily.

It would be interesting to learn, he said, whether kers and confectioners suffered from eczema oportionately more than did the general population. he figures he was able to glean showed they did not, id he was not in a position to say that there was any sh peculiar to the trades in question. Sufferers from zema should not be allowed to work at food industries hile they had the disease, especially as the workers these trades objected to the use of rubber gloves.

Discussion.

Dr. ALLAN PARSONS said that two years ago he was deputed by the Ministry of Health to investigate the conditions associated with an epidemic of "bakers' itch." The conclusion he arrived at was that a great number of the cases of this disease, so-called, could not truly be described as instances of dermatitis due to baking. Many of the cases he saw could be accounted for in other ways. Also, the majority of the supposed cases occurred among employees in shops which were not equipped with machinery, and whose hands and arms were therefore immersed in the dough for a good part of each day. A third point was that a number of the patients had had to work at some time with sugar. He did not feel he could go so far as Dr. White in saying there was no rash peculiar to these trades; but he felt that the case put forward on behalf of the bakers had been a good deal exaggerated. He believed that further investigations were being demanded.

Dr. L. A. PARRY said that he also had made experiments on this subject, in the person of a man, aged 63, who had suffered on so many occasions from bakers' eczema that he was put by the firm on to work in which he did not come into contact with the dough. He had not had any further attacks of the disease since that change was effected. This man was given two separate bowls of flour, in one of which was a preparation of ammonium sulphate and ammonium persulphate (salox) 1 in 4000, and in the other only flour and water. These were plastered on hand and forearm separately and left there for 15 to 30 minutes; and the same was done for six consecutive days, being removed by means of dry flour in the ordinary way. Neither arm at the end of that time showed any sign of irritation beyond a transient redness. A week later there was no trace of any abnormality in the man's skin.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this Association was held on Oct. 14th, Miss M. CHADBURN, the President, being in the chair.

Dr. STENHOUSE WILLIAMS opened a discussion on

Clean Milk and its Production.

He pointed out that the milk industry had had little help or guidance from the medical profession in the problem of producing clean milk. Only those actually in the industry could really appreciate the difficulties and work out a solution. Since the establishment in 1913 at Reading of the National Institute for Research in Dairying, under the auspices of the Ministry of Agriculture, efforts had been made and had proved successful in interesting the local farmers in the ideals of the institute. The chief trouble in milk production was dirt, and its abolition must be viewed on an economic basis. Berkshire farmers had proved to be receptive of new ideas involving asepsis, and six or seven years ago it was generally recognised that a better quality of milk was worth a better price. After the war, and after a considerable struggle, the principle was maintained that farmers were allowed to charge more for cleaner milk. At present three grades of milk were available: certified milk, bottled by the farm; grade A tuberculin-tested milk, bottled by the dealer to whom it was delivered in sealed jugs; and ordinary milk. Certified milk formed only 2 per cent. of the milk supplied in New York at present, and it seemed unlikely that it would ever be possible in America or in this country to supply it cheaply enough to create a large market. Grade A tuberculin-tested milk, however, could be produced at a price of only 1*d.* per quart dearer than that of ordinary milk. In New York 2 per cent. of the milk consumed was consumed fresh and 98 per cent was pasteurised. An alternative to pasteurisation was to press for tested clean milk which could be drunk without treatment, and Dr. Stenhouse Williams said that he had made great efforts, with but limited success, to create a demand from doctors for such milk.

Mr. S. WHITLEY, chairman of the British Dairy Farmers' Association, emphasised the difference between the methods used in producing clean milk and those under which farming was carried on in the old days, and, indeed, was still carried on at farms where no effort had been made to raise the standard. The difference was comparable to that between modern aseptic operating rooms and the conditions under which Sairey Gamp worked. The steps taken to produce clean milk were as follows: First, the cowshed was kept clean, the cows were brought in, and the flanks washed and dried and udders washed and dried. The milker put on clean white overalls and washed and dried his own hands. Formerly, Mr. Whitley observed, cowmen used to wash their hands in the milk. Instead of wide-mouthed open milk-pails, covered pails were now used, a lip on the cover preventing dust which had settled on the cover from falling into the pail. The pail was then weighed, carried to the dairy where the milker without entering the dairy poured the milk into a tin receptacle. It was then cooled, churned, and sent in sealed cans to a retailer, who was also compelled to have a grade A T. T. licence. Surely these precautions were worth the 15 or 20 per cent. extra cost that the consumer had to pay. There was now keen competition among certain farmers to reduce the bacterial count in their milk. Milk consumption in this country was much smaller than in America, Canada, or Denmark. No single thing could benefit agriculture more than to persuade people to drink more milk. Last year over 160 farmers were producing higher grade milk, the supply then was much greater than the demand, but now more farmers were producing this milk, and Mr. Whitley understood that the demand was now greater than the supply. Many farmers were waiting only for the demand in order to start producing grade A milk.

Dr. AMY SHEPPARD asked what precautions were taken to keep the cows that did not react to tuberculin in health. A friend of hers had a herd of cows and took pride in the fact that two-thirds of them did not react; this was apparently a high proportion. Dr. Sheppard said that, in view of the large proportion of cows reacting to tuberculin, she herself would not trust untreated milk and would pasteurise all milk anyhow in country places. Would not keeping cows out of doors be a good plan?

Dr. WILLIAMS replied that cows were tested every six months and were inspected by a veterinary surgeon every quarter, and he considered that these precautions were sufficient. In many districts cows were kept out of doors.—Mr. WHITLEY said that there were certain disadvantages in keeping cows permanently out of doors, especially on wet land, but at least they could be kept in open yards and money could be spent on milking sheds instead of on cowsheds. As to the percentage of reactors many valuable results had been found. It was generally accepted that unless the udder was affected tuberculosis would not be transmitted through the milk. When the intestine or lungs was affected, however, the cow might be dangerous to other cows; in practice when a herd was once free it was found that only 1 per cent. or less than 1 per cent. of reactors were subsequently found.

Miss LOUISA MARTINDALE asked how the milkers' hands were cleaned to secure asepsis. Did they use rubber gloves, and was the same bucket and towel used by all the milkers?—Dr. WILLIAMS replied that sterile gloves were not used and hands were dried on ordinary towels. He did not think that any more stringent regulations were required.

Dr. R. GILLETT said that her children had been brought up on Moundsmere Manor milk and now refused to drink any other kind; presumably there was some noticeable difference in the flavour in really clean milk.

Mrs. FLEMMING, M.D., asked whether Dr. Williams would advise that those farmers who produce grade A milk should confine themselves to this kind of milk or whether they should aim at producing both kinds; now, apparently, cows which reacted to tuberculin tests were merely put into the other herd. Was this a satisfactory arrangement or should reacting cows b destroyed?

Dr. WILLIAMS said that at Reading reacting cows were killed. It was easy to adopt a high standard and say that this was essential, but he was not convinced that this was so. It might be economically very hard on the farmer and would interfere with supply of good milk, for the farmer might be unable to afford to produce it. In the old days, and in some places now, it was impossible to get reliable milk Now the public had an option and this might be a very good thing. In practice, if it were agreed that al reacting cows should be slaughtered, the farmer would have to be compensated and an economic basis would not then be maintained.

Dr. R. JORDAN asked whether, if the reacting cow was followed to the slaughter-house, active tuberculosis was necessarily found.

Dr. WILLIAMS explained that was one of the troubles unfortunately, it was impossible to foretell this.

Dr. CHODAK GREGORY was interested in the economi side of the question since children in London di not get nearly enough milk. If, indeed, grade A mil was only 1*d*. a quart dearer that would not be bad but surely it was a good deal more than 1*d*. a quar dearer in London?

Dr. WILLIAMS said that grade A milk could b bought in London at all prices. At Lord Rayleigh' dairies it could be bought for 2*d*. more per quart at other places up to 50 per cent. more. In hospital and welfare centres a start might be made in creatin a demand which would bring down prices. In answe to the Chairman, he said that St. Bartholomew' Hospital was supplied with grade A milk.—In answe to a question whether this hospital was satisfied wit the keeping qualities of this milk, Mr. WHITLE replied that some complaints had been receive indirectly. On investigation it had been ascertaine that the milk had been kept too hot, had reached temperature of 74° F., whereas it should be kep at 60° F. It must always be realised what an exceedingly delicate product milk was.

Dr. I. LANE spoke of conditions in Sydney and aske whether gastro-enteritis was less prevalent at Readin than elsewhere in this country.—Dr. WILLIAMS coul not give information on that point, but referred her t the local welfare centres.

Dr. ENID MOORE had been feeding her baby o certified milk, but was concerned in the summe because 36 hours elapsed between the time of milkin and the time of the 6 o'clock early morning fee This seemed a very long time. She had been advise by her dairy to use instead their nursery milk whic was pasteurised on collection. This advice was to th economic disadvantage of the firm, since certified mil cost 1*s*. 2*d*. and nursery milk only 8*d*. per quart as a matter of fact, the cream contents of the certifie milk was less than that of the nursery milk. She di not think that inspection every three or six mont was sufficient to guarantee that the cows had not bee infected between the inspections. She asked wheth Dr. Williams would recommend consumers to pasteurise certified milk if 36 hours were to elapse betwee milking and consumption.—Dr. WILLIAMS replie that a high cream line was proof neither of vice n virtue in milk. He did not think it was necessary t pasteurise certified milk under the circumstanc mentioned.

Dr. A. HUTCHINSON spoke of the great difficulty i obtaining grade A milk in certain London distric and of the great variability of prices. What pri should be quoted for mothers as reasonable?—D WILLIAMS said that the price ought not to be more tha 2*d*. per quart more than ordinary milk, but there wa no law preventing dairymen from charging what the could get.

Dr. E. CASSON thought that the distribution by mot lorries had worked so well during the railway strik that perhaps a plan could be devised to continue th system.—Dr. WILLIAMS said that a solution to th problems of distribution had not yet been found.

Reviews and Notices of Books.

EXT-BOOK OF PATHOLOGY.

By ROBERT MUIR, M.A., M.D., Sc.D., F.R.S., Professor of Pathology, University of Glasgow; Pathologist to the Western Infirmary, Glasgow. London: Edward Arnold and Co. 1924. Pp. 774. 35*s.*

A TEXT-BOOK of pathology by a teacher of the minence and experience of Prof. Robert Muir must ecessarily have a much wider appeal than to the tudent for whom it is primarily intended. In articular, other teachers of pathology will read it ith interest not only for its subject-matter but also ecause it reveals the point of view of one of the cknowledged leaders of his profession. For, as the uthor states in his preface, pathology has become so xtensive that a selection of subjects is necessary if students' text-book is to be kept within reasonable mits; and it is in this selection, this choice of what leave out, that an author's professional philosophy laid bare.

As might have been expected, Prof. Muir's book is dmirably conceived and well balanced. It deals hiefly with the structural changes in disease, since it in these that the whole basis of pathology must lie; ut the experimental and chemical sides are not eglected, and the effects of morbid lesions upon unction are constantly insisted upon. Such subjects s systematic bacteriology, parasitology, tropical iseases, diseases of the special senses and of the kin are not specifically treated; and no more space han is absolutely necessary is devoted to congenital bnormalities. The first 200 pages are devoted to eneral pathology, to disturbances of nutrition and f the circulation, inflammation, repair and hypertrophy, infection and immunity, and tumour formaion. The rest of the book is concerned with special r systemic pathology, the results of disease processes n the structure and function of individual organs. nasmuch as there are 433 figures included in the text must be obvious that a good deal of condensation as been necessary, and yet this is not apparent. he author, knowing what he wishes to say, says in the simplest language without circumlocution. hough helpful possibilities and theories are adequately iscussed, he has little time for vague hypotheses; e is chiefly concerned with facts, and he does not esitate to admit when these are insufficient for a rue understanding of the subject. It is probable that any of his readers would have preferred a wider resentation of many subjects, for the author's ndividual opinion on debatable points and his riticism of work still in the making would have been nvaluable. Guidance is badly needed in the interpreation of much of the modern work, that, for example, n infection and immunity. But such elaboration ould have been beyond the scope of the book. t is hardly necessary to say that Prof. Muir's teaching beyond reproach. In one or two minor instances, n his description of Paget's disease of the nipple, r example, it may be that he will be found to differ om other authorities; but for the most part his octrine is as sound as its presentation. A word must be said about the illustrations. With a few xceptions, these are photographs, and many of them re exceedingly good. The microscopic fields illusrated are small and often of low magnification, so has been possible to obtain perfectly clear and atisfactory figures. And the same may be said of he reproduction of naked-eye specimens. But there re illustrations—Nos. 16, 275, and 284, for example—hich the student will find it difficult to interpret, nd we could wish that more use had been made of rawings.

Prof. Muir has written a book which will, we redict, have an immediate success. The general ractitioner who desires to keep abreast of modern athological teaching cannot do better than turn to it; while the student will find it not only a safe guide to success in examinations, but a stimulating presentation of a subject upon which his final studies must be founded.

MASSAGE OF THE HEAD, FACE, AND NECK.

By OLIVE F. SANDS, Registered Member, Chartered Society of Massage and Medical Gymnastics; Masseuse to Savernake Hospital, Marlborough. London: The Scientific Press, Ltd. 1924. Pp. 62. 1*s.* 3*d.*

THIS little book is one of the pocket guide series of the Scientific Press. It is written by a qualified masseuse for the help of those who follow the same profession. For them the details of technique given in the first chapter should be unnecessary, while they are not sufficiently full to be of material assistance to others. The conditions dealt with in the manual are those for which massage of the head and neck is generally employed; the use of massage in the relief of insomnia might well find a place. It is a little unusual to find torticollis referred to as a painful condition, and although injury to muscle at birth is mentioned as a cause of the condition, no special description is given of its treatment. Massage twice or three times a day for 15 minutes seems to us excessive for a child. On the whole, however, the advice given is sound, and if a masseuse should find herself confronted with a case which she has been told to treat without specific instructions, and is in doubt as to how to proceed, she will here find suggestions which will guide her at least in safety.

MECHANO-THERAPEUTICS.

Collected Papers on Mechano-Therapeutics. By EDGAR F. CYRIAX, M.D. Edin. London: John Bale, Sons and Danielsson, Ltd. 1924. Illustrated. Pp. 472. 12*s.*

Dr. Cyriax has made a valuable contribution to the library of physical therapeutics by collecting his numerous communications to the medical press into one volume. He presents us with 65 original papers written in three different languages, and he gives a list of 16 other articles which are not here reproduced. The range of ground covered is extensive. The first 17 papers deal with treatment of the nervous system, the next 22 with bones and joints, 4 are devoted to anatomical study, 11 to the internal organs, while the remaining 11 are on various topics, including 4 on various aspects of work done during the war. The last paper on some points of priority in mechano-therapeutics is of interest, since it shows clearly that the names attached to certain recognised treatments are those of imitators rather than of originators. A full bibliography is attached to each paper.

The book has two serious drawbacks: First, the almost inevitable fault of repetition; secondly, that reference from one paper to another is made by name and not by reference to page or chapter. In this matter the index is of service, but even so, it is at times a matter of considerable labour to find the reference for which one is searching. The average medical man glancing through the list of contents and finding physical treatment advocated in the treatment of acute pleurisy, pneumonia, and diabetes, might feel disposed to lay the book aside as being too revolutionary to merit further attention. He will also find it difficult to accept the possibility of the displacement of the inter-vertebral discs, although a growing number of medical men place credence in minor displacements of the vertebræ and the symptoms which are alleged to arise therefrom. The time has not yet come when these things will receive general acceptance. Yet the work done on these lines by Dr. Cyriax has, in his hands, met with a considerable measure of success, and the need is for other workers to ascertain whether the claims made can be justified in their own experience. The first section of the book dealing with the treatment of the central nervous system must inevitably meet with antagonism, as electrical treatment of flaccid paralysis will find many advocates, while Dr. Cyriax would have us rely on physical treatment. Scanty reference is made to the value of splintage in these conditions. But a priori considerations should not be allowed to detract from the value of researches into the little known ways of the sympathetic nervous system ; if, for example, the victim of chronic constipation can really be relieved by restoring the function of the coccygeal ganglion, all other remedies must be at fault.

Dr. Cyriax is an enthusiast. It may not be possible to accept unquestioned all his observations, but if the publication of this book can inspire others to follow his lines of investigation, even if it is only to prove or disprove the results of his work, a definite advance will be made in medical knowledge.

HISTOLOGY OF TUMOURS.

An Introduction to the Histology of Tumours. By HAROLD A. HAIG, M.B., B.S., D.P.H., Lecturer in Pathology and Bacteriology, Welsh National School of Medicine. London: Henry Kimpton. 1924. Pp. 124. 7*s.* 6*d.*

IN his preface the author states that his book is designed for the use of students and working pathologists and, furthermore, that it has been his aim to avoid controversial matter. Unfortunately, in the present state of knowledge concerning the nature of tumours, the only refuge for the author who would avoid the introduction of conflicting views in a work of this sort is dogmatism, and dogmata are dangerous food for students, while it is to be hoped that "working pathologists" will have nothing to do with them. The descriptions of the commonly recognised and more or less intelligible tumours are clear and concise and should prove of value to the student. In the case of the more obscure neoplasms, such as those originating in the testis, the absence of any critical consideration of the various views as to their nature and origin detracts somewhat from the value of the work ; an important group of new growths, the "mixed tumours" of Wilms, almost entirely escapes notice. However, the student will find much information clearly expressed in this inexpensive little manual, and will doubtless find it a help in the study of a difficult subject.

PEDIATRICS.

Physiopathologie de l'appareil digestif du nourrisson. By ENRIQUE SUNER, Professeur de Clinique infantile à la Faculté de Madrid. French translation by Dr. MATHÉ. Paris: Masson et Cie. 1924. Pp. 92. Fr.10.

THIS little book, which is introduced to French readers by Prof. Nobécourt, presents an account of the infant's digestive and metabolic processes in health and disease and of the essential principles of infant feeding. The section dealing with physiology is admirable, the work of recent years being clearly summarised in a small space. The metabolism of albuminoids is fully described, with special reference to Hamburger's work on absorption of colloids ; considerable attention is also paid to basal metabolism and calorimetry. Pathology is dealt with rather less fully than physiology, but the subject is presented clearly and readably. The author's standpoint is roughly similar to that of Prof. Nobécourt ; he does not subscribe to the views of Czerny or Finkelstein, but regards protein as a common source of digestive disturbance. The chapters on infant feeding will not meet with such general agreement as those on physiopathology. The author himself emphasises the effect of dissimilar climatic conditions on dietetic requirements, and this factor must be borne in mind. He gives the twelfth month as the normal time for weaning, and recommends the addition of starch to the diet of a breast-fed infant from the sixth month. The list of maternal indications for weaning is not particularly helpful, and contains the statement that mitral stenosis is usually congenital. The mixture which the author recommends for artificial feeding has a fat-content distinctly below that of human milk.

This book contains a considerable amount of valuable material ; the addition of references would render it a really useful introduction to the study of infant metabolism.

Examination of Children by Clinical and Laboratory Methods. By ABRAHAM LEVINSON, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School, Chicago. London: Henry Kimpton. 1924. Pp. 146. 18*s.*

IN this book the author has attempted to bring together all the procedures which may be employed, either at the bedside or in the laboratory, for the diagnosis of the diseases of children. Inasmuch as many of these procedures are the same both for children and for adults, it is inevitable that a work of this sort should encroach largely upon the domains of the ordinary text-books of clinical pathology. There are, indeed, sufficient differences in the interpretation both of clinical signs and of laboratory tests in children as opposed to adults to offer ample justification for the production of such a work, but it is the actual procuring of specimens of one sort and another for assay which offers the most serious difficulty in the examination of children from the laboratory standpoint. Dr. Levinson's descriptions of the technique for procuring samples of blood, urine, and so forth from babies form by far the most valuable part of the book and would alone constitute it a most useful aid to the pediatrist.

DIFFERENTIAL DIAGNOSIS.

Vol. II. Presented through an Analysis of 317 Cases. By RICHARD C. CABOT, M.D., Professo of Medicine and Professor of Social Ethics at Harvard University ; formerly Chief of West Medical Service at the Massachusetts General Hospital, Boston. London and Philadelphia W. B. Saunders Company. 1924. Pp. 709. 42*s*

WE recently had occasion to express appreciation of Dr. Cabot's book on "Physical Diagnosis," and commented on its value to the student. The present book is the second volume of a work in which cases illustrating the significance of various major symptoms are discussed in detail. There may not be a large public for such a work in this country, but to the medical man who perforce lives isolated from centres of medical education, there can be few better ways of reviving and increasing his knowledge than by reading such a book in which physicians and surgeons of acknowledged authority give their opinions on particular cases. The descriptions of the cases are sufficiently well done to bring the picture of the patient clearly into mind, and the diagrams and charts which illustrate the volume are well reproduced.

DOSES AND SOLUTIONS.

A Text-book for Nurses and a Reference Book fo Physicians and Nurses. By C. E. GARNSEY Instructor in Anatomy, Dosage and Solutions, &c. in the Washington Sanitarium and Hospita Training School for Nurses, Washington, D.C London and Philadelphia: W. B. Saunder Company. 1924. Pp. 111. 5*s.*

IT is somewhat difficult to determine the use of thi small book on dispensing. In this country at any rat the nurse does not—in her usual vocation—need th information it gives. It may be useful to the docto who dispenses his own medicines if he has forgotte his elementary mathematics and will take the troubl to find what he wants in it. Probably it will be mos useful to a class not mentioned in the dedication— namely, the doctor's unqualified dispenser, for i ffords such a person two aids, some information bout drugs and numerous lessons about the applied nathematics of the dispensary. The working out f the arithmetical problems which meet the dispenser s given in minute detail, and numerous questions re set to which answers are given later in the ook. Simple medical terms are explained, drugs re classified according to their actions, prescriptions re explained, but the dominating feature is the vorking out of problems of quantities—often omewhat intricate—which the prescription sets the lispenser.

JROLOGY.

Die Endoscopie der männlichen Harnröhre. By Dr. ALOIS GLINGAR. Vienna: Julius Springer. 1924. With four plates. Pp. 72. $1.70.

THIS is a brief and business-like monograph on ndoscopy of the male urethra. The instruments used or endoscopy both with air distension and with rrigation are described, and suggestions are made as o their clinical use. Detailed descriptions are given f the appearances of the urethra in normal and in liseased conditions, as seen by both methods. The lescription of the pathological changes in the deep urethra is particularly good. A short account is given f the various manipulations and operations which an be carried out endoscopically, and the whole is llustrated by a first-rate series of plates.

The book is essentially practical, and is plainly the work of an expert. It can be warmly recommended o all who practise this branch of surgery, and those who do not read German will find the book useful for the sake of the plates.

DIGBY'S MIRACLE.

By FRED. E. WYNNE. London: Herbert Jenkins. 1924. Pp. 310. 7*s.* 6*d.*

Dr. Digby is by training and inclination an experimental physiologist, and by circumstance a village practitioner, whose heresies preclude popularity. His special knowledge finds little scope until, called to the bedside of a paralysed girl whose patience under affliction has given her the status of a village saint, he is able to confirm his suspicions of her integrity by eliciting normal electrical reactions from her muscles. Her exact mental state, whether hysteria or conscious malingering, is not quite clear, but it is the circumstances of her cure rather than the pathology of her condition that are incidental to Dr. Wynne's intriguing story. For, to save the patient's face and also—a less worthy motive—to advertise the village for his own advantage, this enterprising fellow, young Digby, organises a miracle, arranging with the girl to have a vision guiding her to the curative waters of an old well. His punishment is not light: he has attracted this erotic, ill-balanced patient, who attempts to compromise him, and moreover his real affinity is repelled when she learns the source of the first of the series of faith-cures which are making the village famous. Flitting vaguely through the book is a rather prolix unworldly peer, who criticises nothing—not even the breeding of a professional man who addresses him repeatedly as "your lordship"—but quietly restores peace all round by having the stream of water deflected from the "holy" well.

The idea underlying the novel is excellent, and as a good story it should appeal to a wide and varied public. Those only will be disappointed who would wish to see the psychological problems involved more clearly defined and discussed, and the characters investigated more searchingly. A subject worthy of Henry James is wasted as the plot of a breezy novel, however absorbing; but it is probably just as a relaxation from socio-medical problems that the medical officer of health for Sheffield turns to the writing of light novels. Those who enjoyed the "Mediterranean Mystery" will find its successor no less entertaining.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XXI.—MEDICAL ASSISTANTS.

By JAMES NEAL, M.R.C.S. ENG.,
GENERAL SECRETARY OF THE MEDICAL DEFENCE UNION.

Quamdiu se bene gesserit.

Passing of the Unqualified Assistant.

LESS than half a century ago it was a common practice for a registered medical practitioner to employ one or more unqualified persons as assistants in the work of the practice. These unqualified assistants were frequently left in sole charge of medical practices, although possessing little or no professional knowledge, and so greatly was this custom abused that in 1893 the General Medical Council passed a resolution to the following effect:—"That the Council record on its Minutes for the information of those whom it may concern, that charges of gross misconduct in the employment of unqualified assistants, and charges of dishonest collusion with unqualified practitioners, in respect of the signing of medical certificates required for the purposes of any law or lawful contract, are, if brought before the Council, regarded by the Council as charges of infamous conduct under the Medical Act." This pronouncement was followed in 1897 by the following Warning Notice:—

> "Whereas it has from time to time been made to appear to the General Medical Council that some registered medical practitioners have been in the habit of employing as assistants in connexion with their professional practice persons who are not duly qualified or registered under the Medical Acts, and have knowingly allowed such unqualified persons to attend or treat patients in respect of matters requiring professional discretion or skill; and whereas in the opinion of the Council such a substitution of the services of an unqualified person for those of a registered medical practitioner is in its nature fraudulent and dangerous to the public health, the Council hereby gives notice that any registered medical practitioner, who is proved to have so employed an unqualified assistant, is liable to be judged as guilty of 'infamous conduct in a professional respect,' and to have his name erased from the Medical Register under the 29th section of the Medical Act, 1858.
>
> "Further, in regard to the practice commonly known as 'covering,' the Council gives notice that any registered medical practitioner, who by his presence, countenance, advice, assistance, or coöperation, knowingly enables an unqualified or unregistered person (whether described as an assistant or otherwise) to attend or treat any patient, to procure or issue any medical certificate or certificate of death, or otherwise to engage in medical practice as if the said person were duly qualified and registered, is liable to be judged as guilty of 'infamous conduct in a professional respect,' and to have his name erased from the Medical Register, under the said enactment.
>
> "But the foregoing notices do not apply so as to restrict the proper training and instruction of bonâ-fide medical students or the legitimate employment of dressers, midwives, dispensers, and surgery attendants, under the immediate personal supervision of registered medical practitioners."

From this time the unqualified assistant has gradually disappeared, though for some years the regulations of the General Medical Council permitted a bonâ-fide medical student to spend six months of his final year as a pupil to a registered practitioner. Little, if any, advantage was taken of this permission, however, and in 1906 the General Medical Council withdrew the recommendation.

In these days any assistant in a medical practice must himself be a registered medical practitioner, and the fact of registration should be verified in every case. The greater number of assistants are comparatively newly qualified men, who, after holding various resident appointments in hospital, are anxious to acquire an insight into the details of medical practice before setting up on their own account. Certainly there is no better way of completing one's medical education, but a year or two spent in this way will suffice, though many who start their professional careers as assistants are compelled from want of capital to remain in that position much longer before they are able either to buy a partnership or practice, or to set up on their own account. An assistancy with a view to partnership should only be entered upon when there is a definite agreement, signed by the principal, to offer the assistant a partnership at a definite date on terms, the more important of which should be specified in the agreement. I have referred to this point in a previous article, but it may be well to repeat the warning here.

The Contract: Law and Custom.

The legal relationship of principal and assistant in a medical practice is that of master and servant. It necessarily follows that the assistant becomes the agent of the principal for certain purposes, and that the ordinary principles of agency apply. The contract should in every case be made in writing, however short the period of the engagement, and should include the following principles drawn up by the British Medical Association :—

1. The assistant to give diligent and faithful service.
2. The assistant to give his whole time and attention to the practice under the direction of the principal.
3. The assistant to receive from the principal periodic payment for his services.
4. The assistant to keep just accounts and pay over to the principal all moneys received on behalf of the practice.
5. Provision for a holiday for the assistant.
6. Provision for the determination of the agreement.
7. Period for the duration of the agreement.
8. A restrictive clause as to practice during and after termination of the agreement.
9. A provision that both the principal and the assistant should be members of one of the Medical Defence Societies during the whole period covered by the agreement, and for the settlement of disputes by arbitration.
10. That if the principal requires the assistant's name to be put upon the insurance panel the assistant must agree that either the assistant shall not accept any insured person other than in the name of, and on behalf of, the principal, or if any insured persons are accepted in the name of the assistant he shall take every possible means to ensure the transfer of those persons to the list of the principal on the termination of the agreement.

The agreement must bear the proper stamp, and should be drawn up by a solicitor who has been fully instructed as to the requirements of the case. Where no contract exists, or the agreement does not specify what notice shall be given to determine the contract, the following customs have been held to prevail in the profession :—

1. In the case of a permanent assistant, engaged nominally for the year, where the salary is paid weekly, the custom is to give and require a month's notice.
2. An indoor assistant, or an outdoor assistant living in lodgings, or in a house furnished and provided by the master, may be dismissed, at any time, by a month's notice, or on the payment of a month's salary.
3. An outdoor assistant, living in lodgings, or in a house furnished and provided by himself, by the wish, or with the consent of the master, may be dismissed, at any time, by a three months' notice, or on payment of an equivalent salary.
4. Where an outdoor assistant, at the suggestion of the master, takes an unfurnished house, upon a yearly tenancy, terminable by a quarter's notice, at any quarter-day, and furnishes such house himself, it is customary for the master to give a three months' notice, terminating on the next ensuing quarter-day.
5. Where the master provides the house or rooms for an outdoor assistant, and the assistant provides the furniture, it is usual to give a three months' notice.

Relation between Principal and Assistant.

An assistant is legally bound to obey all reasonable and lawful orders of his principal, and may be dismissed without notice for wilful disobedience, gross misconduct, negligence, incompetency, or permanent disability through illness. The contract of service is dissolved by the death or bankruptcy of the principal. The principal must indemnify the assistant from the consequences of all lawful acts done in pursuance of his duties. This does not apply to the ordinary risks of a medical practice—e.g., the danger of attending infectious diseases. In law the principal is responsible for the consequences of any act of his assistant performed in the course of his employment and duty, this being the ordinary responsibility of the principal for the acts of his agent. But the assistant also is responsible in law for his own acts, and the aggrieved party has the right to select whether he will bring the action against the principal or against the assistant, or against both.

It is most desirable that both the principal and the assistant should be members of one and the same defence society. The two defence societies in this country, although coöperating in all matters in which they have a joint interest and concern, maintain an entirely independent position, and a few years ago in a joint letter to the medical press it was pointed out that membership of either society was purely personal, so that no member would be protected against an action brought against him in respect of an act of his partner, assistant, or locum-tenent, unless such partner, assistant, or locum-tenent were a member of the same society as the principal.

Remuneration.

The remuneration of an assistant varies in different practices according to the amount of work to be performed, and according to whether his board and lodging are paid for by himself or by his principal. Not infrequently a commission is paid in addition to the salary, either on midwifery cases attended, or in some instances a percentage is given on all receipts of the practice over and above a stated amount, to encourage the assistant to make every effort to increase the takings beyond that figure. An assistant rightfully discharged has no claim against his principal for salary for the broken period of service. When an assistant is engaged by a firm of partners, any partner has a right to terminate the engagement, so long as his action is ratified by the other partners. But if one partner tells the assistant to remain, the latter will be within his legal rights in disregarding the notice to leave. A principal can recover fees for attendances given by an assistant, so long as the services of the assistant have been accepted by the patient.

In the absence of any specific agreement to the contrary, all professional fees paid to an assistant, including fees for notification of infectious diseases, for attendance at inquests and court cases, and for performing post-mortem examinations on the direction of a coroner, belong to the principal. It is customary for the principal to pay the travelling expenses incurred by an assistant for the purpose of taking up his appointment, and for the assistant to pay his own expenses when he leaves.

Restrictive Clause.

Assistants are obtained by personal recommendation, by advertisements in the medical journals, and through a medical agency. In the latter case the agency accepts a certain responsibility, and should be informed at once if the assistant should prove unsatisfactory. The restrictive clause which it is now customary to introduce into an agreement with an assistant is of great importance. The radius within which and the length of time during which the assistant shall be debarred from practising in the locality vary according to the class of practice and the nature of the district. The prohibition is usually less severe than in the case of a partner, but should be sufficient to protect the principal from serious opposition. On the other hand, it must not be made wider than is reasonably necessary for this purpose, or it might be declared null and void, as contrary to the public interest. It should particularly be observed that the restraint is not removed by the death of the principal or by his retirement from practice.

THE LANCET.

LONDON: SATURDAY, OCTOBER 25, 1924.

AN EXEMPLARY PENALTY.

The matters at issue between the insurance medical service and the approved societies having been settled for the immediate future, the annual panel conference on Oct. 16th[1] was of a more domestic character than for some time past. It was possible at the beginning to make arrangements for the regular holding of a social dinner at the time of each annual gathering, and at the end to offer a well-earned token of gratitude to Dr. H. G. Dain, who is retiring after having piloted the conference through many stormy sessions. Much of the time was occupied by deciding what evidence, and in what form this evidence, should be presented to the Royal Commission on National Health Insurance, which held its second meeting on Oct. 15th at the Ministry of Health, and was to meet again on Oct. 23rd. The Commission, we understand, decided that the sessions at which oral evidence is taken will be held in private, a verbatim report of the evidence to be published within about a fortnight of each meeting. The atmosphere of the conference was, indeed, so calm that it was deemed advisable to give warning of possible squalls ahead. The defence fund, which has only yet reached a bare quarter of the £250,000 contemplated by its initiators, is increasing, but increasing slowly, doubt being present to many minds whether, with the capitation settlement and the Royal Commission appointed, its existence was any longer justified. Dr. Brackenbury pointed out with the wisdom of an experienced fighter that not only did one never know, but that a large sum of money at the back of them is an untold comfort to those on whom falls the duty of conducting ticklish negotiations.

The one really absorbing interest at the panel conference was the £1000 fine inflicted by the Ministry of Health on two panel practitioners charged with accepting fees for medicines supplied to insured persons in contravention of the terms of service. The committee appointed by the Ministry to inquire into the circumstances consisted of Mr. E. H. Tindal Atkinson, Barrister-at-Law (chairman), Dr. Dain, and Dr. Alex. Forbes, and their report was made just a year ago. It is unnecessary to summarise this report here, for the material portions of it have just been printed in a document issued by the Stationery Office.[2] Stated in general terms, the complaint submitted for inquiry was not merely the illegal acceptance of fees, but the encouragment of the belief that drugs or medicines provided by the insurance committee were not as efficacious as those which the panel doctor could supply, such an attitude being regarded as calculated to have an effect derogatory to the medical service. The sum of money involved in the transactions amounted to a total of about £60, the separate items of medicine being charged at the rate of 3*s.* 6*d.* per bottle or 3*s.* for cash. Only in three cases was the committee satisfied on the evidence that there was anything in the nature of direct suggestion from the respondents to patients that the latter should order and receive private medicine. But the committee found that there did exist among a certain proportion of insured persons in the district an impression, which the respondents were not careful enough to combat, that medicine supplied under insurance prescriptions was inferior and less efficient than that which doctors could themselves directly provide. There was no question whatever of concealment; the books were placed freely at the disposal of the inquiry, and all relevant documents were frankly disclosed. Acting on this report the Ministry decided not to remove the doctors from the medical list but to withhold a sum of £1000 from the supplementary grant. Subsequently the respondents applied to the High Court for the decision to be quashed on the technical ground that the insurance committee had made representations in respect of one of them without first directing an investigation by the medical service subcommittee, but this claim was not upheld. The Insurance Acts Committee has continued to press the Ministry to reconsider the penalty, but apparently the last word has been said and the decision is final. With these facts in view a motion was brought forward at the conference by the medical committee of the area, suggesting that the vindictive action of the Ministry in this case had disclosed a position of such danger to panel practice that in the event of its repetition immediate steps should be taken to send in notices of resignation. The chairman of the local committee expressed a doubt whether such a fine could be regarded in the nature of a penalty at all; he felt that so large a sum would not have been awarded against the doctors by a court of law, and that the penalty had awakened among panel doctors generally a feeling of distrust of the Ministry which could only be detrimental to the service. The decision has apparently led to a reawakening of the demand, repeatedly made at panel conferences for many years but which lately had practically died away, that decisions of the Ministry should be subject to appeal before some judicial tribunal. The conference, however, with commendable restraint decided not to brand the action of the Ministry as vindictive but to express its opinion that it was contrary to the principles of English justice for the Ministry to assume offences over and above those proved at the inquiry and to inflict any penalty in regard to such unproved offences, and further to protest against the invitation of the Ministry to the insurance committee to revise conclusions reached by that committee after inquiry in accordance with the regulations.

Apart altogether from the question of equity, the case gains greatly in interest from the fact that, according to their representatives at the conference, practitioners in South Lancashire do hold strongly that the medicine prescribed by them is actually more valuable to the patient than medicine in which the patient has no confidence. Their representatives were equally certain that all the practitioners in the area are desirous of carrying out strictly the wording of their regulations which forbid them to make a charge for medicine to patients on their list. The difficulty therefore remains unsolved. Doctors in Lancashire, no more than in other industrial areas, try to induce patients to take their physic; it is the patients themselves who demand the physic and who insist on paying for it. The inquiry committee had to admit that there was a custom prevalent in the county, as well as in other districts, whereby the ordinary patient regarded the supply of medicine and payment for the same as a matter of greater importance in his cure than the services rendered by his doctor by way of attendance. In these days little enough may remain of the bedside manner in its widest sense as an asset in contract medical practice; but here is an instance in which a natural belief in the value of the doctor's physic must be dispelled—and dispelled to the disadvantage of the patient—by the practitioner who accepts his statutory duties under the Insurance Acts. It is a psycho-physical problem of no little medical interest, and one which cannot be disposed of by an exemplary fine.

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[1] A report of the conference appears on p. 873.

[2] Ministry of Health Reports of Enquiries and Appeals, &c., under the National Health Insurance Medical Benefit Regulations. Vol. III. H.M. Stationery Office. 1924. 3*s.*

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MENTAL HYGIENE AND WAR SERVICE.

THE occurrence of mental disorders on a large scale during the war found us to a great extent unprepared, and even those psycho-pathologists who were awake to the situation did not foresee that one legacy would be the presence of large numbers of ex-soldiers mentally unfit to take their place in the economic life of the State. These disorders were mainly of the kind called minor psychoses or psychoneuroses, and among the cases were found a high percentage, ranging from 50 to 80, with a history of pre-existing psychoneurotic symptoms. Service experience obviously exacerbated morbid states which would have remained comparatively harmless under ordinary conditions. It is not possible to say what proportion of pensioners belong to the group, since the official invaliding disability often gives no indication of the true nature of a man's disorder; but the proportion is a high one and the resulting social inefficiency is serious. Employers find that these men offer a greater problem than ex-soldiers with physical disabilities, and one hears from the men themselves complaints of an unfavourable discrimination which appears unjust and yet is sometimes inevitable. Economic stress on the one hand and a pension on the other operate unfavourably in presence of a condition that primarily arose as a failure of mental adjustment and still maintains that character. The popular belief in a physical foundation for the trouble, a belief fostered by the unfortunate phrase "shell-shock" and to a less extent by the word "neurasthenia," does not simplify the problem of the psychoneurotic pensioner. Events in America have followed a similar course, and an article by Lieut.-Commander R. F. SHEEHAN on Military Mental Defect[1] formulates conclusions with which workers in this country will be in almost complete accord. He finds that psychoses, such as dementia præcox and manic-depressive states, did not occur during the war with greater frequency than in peace, that dementia præcox was the most prevalent psychosis, as might be expected from its age incidence, and the group comprising the psychoneuroses and so-called border-line states was productive of the most damage. Not only during the war activities, but after the cessation of hostilities, they made up the largest class receiving aid from the Government. Dr. SHEEHAN deems it possible to exclude, by careful psychiatric examination, a large number of those who would develop symptoms under the pressure of war activities, and the suggestion should be read in conjunction with another article in the same journal which refers with pride to the results of an organised effort to exclude from the army those men in whom the presence of an early tuberculosis seemed likely. Dr. SHEEHAN points out the difficulties in handling psychoneurotic pensioners, and that the resistance to treatment characteristic of the condition is often fostered by a well-intentioned but misdirected interest, based upon an erroneous conception of the mechanisms underlying the production of the symptoms. Such difficulties are familiar on this side, and our Pensions Ministry is faced by the dilemma that it is the duty of the country to help, by pension and treatment, those who broke down through a combination of predisposing tendencies and the stress of war—a stress sometimes as great as man was ever called upon to endure—and that at the same time the patients must be encouraged towards a rehabilitation of morale, towards a renunciation of the feelings of dependence, and away from the use of the symptoms as a defence reaction against the difficulties of life.

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THE ELECTRONIC REACTIONS OF ABRAMS.

DR. ALBERT ABRAMS, of San Francisco, originator of the system of diagnosis and treatment by means of the so-called electronic reactions, died at the beginning of this year. His system lives after him. A few days ago the *Daily Express* reported a New Zealand case in which a woman was awarded £2000 damages against an Auckland doctor for "negligent treatment and false representation tending to needless delay and suffering before undergoing an operation elsewhere." The necessarily brief account from which we quote indicates that the patient was advised by two doctors to undergo an operation for cancer; she was treated instead by a practitioner who administered the Abrams treatment, and who is stated to have assured her that it would effect a cure in four or five weeks.

It happens that a full account of ABRAMS and his system is given in the *Scientific American* of last month. That journal, which conveys a variety of technical information in popular form, undertook a year ago, in response to repeated inquiries from its readers, an investigation of the diagnostic and curative value of electronic reactions. It appointed a committee with suitable qualifications, and it has now summarised the committee's conclusions. The investigators closely examined the Abrams instruments and technique; they saw the system at work, and they conducted a voluminous correspondence with practitioners and patients. The result, based on materials which we have no means of testing but framed in terms which we do not hesitate to accept, is a clear finding that the so-called electronic reactions of Abrams have no objective existence. The Abrams technique is declared to be "at best an illusion, at worst a colossal fraud." The summary contains a narrative of the evolution of the Abrams system, which is of human as well as medical interest. The story tells how the originator discovered that electrons were the real basis of life, the foundation of good or ill health. We hear of such instruments as the dynamiser and the reflexophone, invented for gathering, sorting, and tuning the electronic emanations from a blood specimen. Then comes the discovery of the percussive effect of the electronic waves or vibratory rates upon the human abdomen, with the subsequent claim to detect thereby cancer, tuberculosis, syphilis, and other pathological conditions in their incipiency before their symptoms can be observed by orthodox medicine. Electronic diagnosis told the patient's life-history from a drop of his blood. He pricked his finger, wiped the blood on a piece of blotting-paper, and posted the specimen to an electronist. The latter placed the specimen in the dynamiser, connected the apparatus up with a healthy young man or woman known as the reagent, and then made his diagnosis. The reagent responded to the vibratory rates in the blood specimen. If the patient had a toothache or a sore toe, the reagent, acting as the patient's proxy, had the same. The next stage was the invention of the oscilloclast, a machine for setting up electronic waves to break up or combat the harmful and destructive waves within the patient's body and thus restore him to a normal electronic balance. Fortunate in the publicity it received, the electronic reactions method advanced in popularity until, according to the *Scientific American's* estimate, in 1923 there were over 3500 electronic practitioners at work. If they did not all use the Abrams technique, most of them were using something like it. Patients began to ask for the Abrams treatment for which so much was claimed. Orthodox practitioners, tempted to give the public what it clamoured for, could take a 250-

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[1] The Military Surgeon, Washington, D.C., October, 1924.

dollar four-weeks' course and emerge fully qualified. At first, it seems, Dr. ABRAMS intended to confine electronic practice to doctors with a M.D. degree. Presently the basis was broadened. Orthodox doctors found themselves in strange company. The local medical association declared against the electronic system. Unkind tricks were played upon electronists who were sent specimens of chicken blood and diagnosed them as the blood of men suffering from congenital syphilis, cancer, tubercle, and so on. Orthodox doctors who had strayed into this field had either to find their way back to orthodoxy or to flourish by unorthodox methods which were commercially the more successful in proportion as they were the less scrupulously employed.

Incredible claims were made on behalf of the Abrams system. He appeared in a San Francisco court prepared to determine the paternity of a child by the electronic diagnosis of a drop of blood. In the recent New Zealand case counsel for the plaintiff asserted that it had been claimed that the Abrams machine could diagnose any of more than 100 diseases and could cure them, and that it could tell a man's religion and predict the sex of an unborn child. If we discount this assertion as possibly warmed by the genial fervour of a forensic atmosphere, the *Scientific American* narrates scarcely less remarkable stories of Dr. ABRAMS finding himself able to make his diagnosis from a photograph or a lock of hair in place of a drop of blood. Possibly it was the journalists who encouraged him in these higher flights. If so, it is appropriate that our contemporary should have restored the balance. The story is a study in faith healing and human gullibility. One strange feature of it is the fact that there was a moment when the Abrams method received a not unflattering attention in unexpected places in this country.

THE FIRST SOCIAL EVENING AT THE ROYAL SOCIETY OF MEDICINE.

THE first social evening of the session took place on Thursday, Oct. 16th, when Fellows, members of Sections, and their friends were received by the newly-elected President of the Society, Sir StClair Thomson. At 9.30 the Barnes Hall was filled to overflowing to hear an illustrated lecture by Dr. W. T. Grenfell, of Labrador, on Medicine in a Corner of the Empire. The new President was in great form throughout the evening, and his remarks in introducing Dr. Grenfell were of a gaiety to which no report can do justice. He admitted to a considerable feeling of awe at finding himself the sixtieth President in the 120 years since the foundation of the Society. Among those who had preceded him in the chair were Addison and Bright, who have given their names to well-known diseases, while he had reached his present age and had not yet discovered a good, killing, serviceable disease! Of surgeons who had held that office before him he instanced Abernethy, Astley Cooper, Benjamin Brodie, and Sir James Paget; his own position there he owed greatly to the fact that he represented the specialty to which he had devoted a life-time. Only once before had a specialist occupied the chair, in the person of Sir Francis Champneys. He felt very proud at being chosen as the first ophthalmic specialist to break the long chain of surgeons and physicians who had followed one another since the year 1805. The Society, which now numbered some 5000 members, was, he said, carried on by the active hon. secretaries, Mr. W. Girling Ball and Dr. H. L. Tidy, who had just taken the place of Dr. A. M. H. Gray after five years' strenuous service. In presenting the lecturer, Sir StClair Thomson reminded his audience that Dr. Grenfell was an old Marlborough boy, an old Oxford Rugger Blue, a past house surgeon to Sir Frederick Treves, that he once looked after the "elephant man," that he was an F.R.C.S., and also qualified as a master mariner. A report of Dr. Grenfell's lecture will be found on p. 891.

Annotations.

"Ne quid nimis."

OCCUPATIONAL DISEASES OF MINING.

THE coal-mining industry, although the general mortality of its workers is not high, suffers more than any other industry from occupational diseases which are subject to compensation. Foremost stands miners' nystagmus with 4091 new cases in 1922; second comes "beat" knee with 1721, third is "beat" hand with 1138, while "beat" elbow with 200 new cases is only just behind industrial lead poisoning with 247. The four first-named diseases essentially concern coal-miners. Nystagmus has already been the subject of two reports made by a special committee of the Medical Research Council. Now two members of that committee discuss the three "beats" in a report which has just been issued.[1] The prevalence of these diseases is stated; their causation is debated; their clinical characteristics are described; and means for their prevention and treatment are advocated. The disease in each case is a subcutaneous cellulitis of the part affected originating from trauma, chronic or acute, the result of work. The vernacular name "beat" indicates of itself that these diseases are not new things; nystagmus, on the other hand, which is a comparatively recent trouble associated with deficient illumination, presents a contrast in possessing no such popular designation.

The report is of interest not merely for the amount of useful information it contains, but because it sets forth the difficulties often associated with any attempt to reduce to statistical proof the causative influences concerned with occupational diseases. An effort is made to disentangle the possible effects of getting hard or soft coal, of working in wet places or in thin seams, of hand or machine getting, of depth of workings and of temperature; some support is found for the accepted opinion that, owing to the posture assumed when undercutting coal (of which good pictures are given), work in thin seams, especially if wet, tends to cause beat knee and also beat hand, which latter disease is also influenced by the hardness of the coal. The evidence gathered from each individual case, and from practitioners working in colliery areas, proves to be more valuable than records comparing the incidence of the diseases with the conditions prevailing on the different coalfields. In Somerset and the Forest of Dean coal is drawn on toboggans from the face by human traction; on these coalfields the workings, limited by the thickness of the coal, may be less than two feet in height. Boys dragging the load seize the roof props first with one hand then with the other while they thrust with their feet against the props behind; the action is that of a swimmer with the body swung clear of the ground, but occasionally the knees strike the floor. Hence on these coalfields the incidence of beat knee is far higher than elsewhere. Beat hand is particularly prevalent in the Cumberland mines, a fact which is ascribed to the hardness of the coal worked; the hands are jarred by the pick handle when the coal is struck. The condition which results is well illustrated. Beat elbow occurs more in Belgium than in Great Britain. On the Belgian coalfield seams are thin and inclined; "much of the travelling at the coal face is done by glissading down on the back, while the elbows are used either as brakes or levers. The likelihood of small injuries being sustained by the points of the elbows is considerable, and almost certainly this is the factor which determines the high incidence of the disease." Radiographs show how in this condition osteophytes detached from the olecranon process come to exist in the chronically inflamed bursa.

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[1] Report on Miners' "Beat Knee," "Beat Hand," and "Beat Elbow." By E. L. Collis and T. L. Llewellyn. Medical Research Council, Special Report Series No. 39. H.M. Stationery Office. 1924. Pp. 49. 1s. 6*d*.

The clinical and pathological aspects of each condition are well described. In this part of the report allusion is made to the customs and habits of miners. Here reference occurs to the practice of wearing a cord as a garter below the knee.

> "The explanation given of this practice, that by preventing coal and dust getting up the legs, it serves to keep the thighs clean (sic) and so obviates the necessity for washing, is hardly to the credit of the miner. It provides a sidelight on the need for pit-head baths to remove an ingrained habit as well as ingrained dirt. The garter acts in a twofold way: it gives a false security of cleanliness, and acts as a trap for retaining at the knee particles of coal and dirt which get into the trousers. We advise abolition of the order of the garter so that the order of the bath may come into its own. There was for daily use in 1922 in the whole of the kingdom washing accommodation (including three swimming baths) for upwards of 3000 men only, while there were employed underground in that year over 980,000 men!"

The value of protective knee-pads for use is discussed. The authors lay great stress on the need for early and skilled surgical treatment in every case, and particularly for cases of beat hand. "As soon as possible after the acute stage, massage, with passive and later on active movements, must be carried out. This form of treatment frequently accelerates the closure of the wound. It is a mistake to wait until a chronic sinus is closed before beginning massage." Only in this way can be avoided unnecessary risk of complete loss of function of the hand rendering unemployable men in the prime of life. Reference is also made to cases of non-infective tenosynovitis of the wrist; these cases, however, are less numerous and less serious than the cases already mentioned; they result from sudden strain, from unusual exercise of the forearm muscles, or from repeated jarring from using the pick on hard coal or rock. They usually respond quickly to rest.

The authors conclude that (1) the underlying cause for each of the diseases is the same—repeated trauma; and that the first line of prevention is to guard against it, or to minimise the risks so far as is practicable. (2) The determining cause of an acute condition is the ingress of infection to tissues of lowered resisting power; and the second line of defence is avoidance of infection by keeping the skin clean and the general health good. (3) The third line of defence lies in the proper equipment and use of first-aid stations in close touch with skilled surgical advice, which is particularly needed for cases of beat hand. (4) These lines of defence should be strengthened by (*a*) the abolition of garters worn below the knee, (*b*) the use in thin seams of suitable knee-pads, (*c*) attention to smoothness of pick handles. The three diseases are undoubtedly of great importance to the mining fraternity. Since, however, they are seldom fatal, the operating surgeon has been inclined to pass them by and leave them to his house officer. Practitioners who come in touch with the coal-miner will be grateful to the authors for having studied so closely diseases hitherto but little noted by experts.

PERFORATION OF GASTRIC AND DUODENAL ULCERS.

IF a gastric or duodenal ulcer has reached the stage when persistent medical treatment has failed to effect a cure, what are the chances of perforation occurring if operation is not resorted to? This is a question with which most physicians and surgeons are faced more than once, and it is unsatisfactory to note the great differences in the estimates of this risk by various authorities. Thus, Leube puts it at 1 per cent.; Ewald at 1·2 per cent.; Villingk at 2·7 per cent.; Michaux at 3·5 per cent.; Harslof at 10 per cent.; Brinton at 13 per cent.; Nolte at 25·8 per cent.; and Krogius at 30·3 per cent. In a recent publication Dr. O. E. Cederberg[1] has made a study of the cases of gastric and duodenal ulceration coming to operation for perforation at the Wiborg Hospital in Finland in the period 1904–24. In 11 of these cases the operation was performed before 1912, and inadequate records were made on them. In the remaining 60 cases careful records were kept, and it was found that 22·9 per cent. of all the cases of gastric and duodenal ulcer coming to operation were complicated by perforation. Dr. Cederberg, after comparing his own findings with those of other surgeons, concludes that among hospital cases the frequency of perforation is about 10 per cent. With regard to his own material, he notes that only two of the patients were women, and only in ten cases was the perforating ulcer in the duodenum; in the remaining cases the pyloric portion and the minor curvature of the stomach were the sites of the perforation. During the food-restriction period of the war, 1917–1919, the frequency of perforations was almost twice as great as before and after this period, and it would, therefore, seem that war-time rationing played an important part in this matter. In 30 cases the operation consisted simply of closing the perforation and reinforcing the closure with Braun's omento-plasty followed by irrigation and drainage of the abdominal cavity. The mortality was 50 per cent. This poor achievement was largely due to the length of the interval in many cases between perforation and operation, but Dr. Cederberg thinks it was also due, in part, to faulty technique. Since 1914 gastro-enterostomy was often done as an adjunct to closure of the perforation, and of the 34 patients thus treated only six died. The later results, as well as the immediate post-operative results, seemed to be in favour of gastro-enterostomy, for 60 per cent. of the patients thus treated were found at a later date to be in good health, whereas this could be claimed for only 30 per cent. of the patients treated only by closure of the perforation.

THE PREVENTION OF MALARIA.

THE publication of the Parkes Memorial Prize Essay on the Principles of the Prophylaxis of Malaria, by Captain J. S. K. Boyd, R.A.M.C., is completed in the *Journal of the Royal Army Medical Corps* for September. It is a pity that the essay could not have been published in one issue, for such a paper, giving what we may presume to be as complete a statement as the R.A.M.C. can to-day offer, will be widely read and quoted. Captain Boyd lays down four lines of prophylaxis: (1) The reduction or elimination of the reservoir of infection in infected persons; (2) the reduction of the mosquitoes by antilarval measures; (3) the protection of men from mosquitoes; (4) quinine prophylaxis. He advises concentration on one line, carefully choosing the most hopeful of the four, as it is scrupulous attention to detail that brings success. The methods he adopts for each of the four systems of prophylaxis are as follows. For the first system it is essential to keep infected natives at a distance, especially at night, and to give 10 gr. of quinine daily to all malaria carriers, thus reducing their infestation, particularly in regard to gametocytes, and so lessening their chance of infecting mosquitoes. Captain Boyd remarks that some medical officers tempt men to come regularly for their doses by double rations, light duty, or the like. The second system of prophylaxis is good in cantonments, but is almost impracticable on active service. To work on this costly principle demands, as a preliminary, exact and expert investigation on the spot. For example, *Anopheles stephensi*, breeding in wells, is easily mastered, but *A. maculipennis*, breeding in swamps, and *A. maculatus*, in streams, require quite different treatment, so it must be decided what species is to be attacked first. The third system consists in the provision of mosquito nets or repellents; the latter require frequent reapplication, as they are volatile, and are not effective for more than a couple of hours. Fourthly, quinine prophylaxis is carried out by the administration of a dose of 5 or 10 gr. of the drug daily, usually at about 6 P.M. This treatment is of value where mosquitoes are not very numerous, and where administration can be rigidly controlled; but it is not so good on active service unless the mortality from malaria is high. Captain

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[1] Finska Läkaresällskapets Handlingar, July–August, 1924.

Boyd further indicates certain considerations which must be borne in mind by the War Office when a campaign is projected in malarial districts, if the health and efficiency of the troops is to be kept at a maximum. The War Office should aim, he states, to plan the campaign for the non-malarial season, probably December to May inclusive, and should use, if possible, seasoned troops only, whether native or white. Mosquito nets must be provided, particularly bivouac nets, with a 10 per cent. surplus for each unit for replacement. Malaria diagnosis units, as in Palestine, will be needed, in numbers varying with the extent of the area, not with the number of the troops. On the headquarters staff of the expedition there must be an anti-malarial officer to deal with local problems. Screened huts will be needed for dining and recreation rooms. Base hospitals should be established at the outset, followed as soon as possible by hospital accommodation on the lines of communication. If a native village is heavily infected and near a camp, then the village must be removed. The medical officer of each unit must interest the troops in the prevention of malaria, and see that the scrub round the camp is cut. Care must be taken to keep the mosquito nets in serviceable condition and in nightly use. Further details are given in this very complete and most valuable paper. Captain Boyd's essay is an excellent critical synopsis of much recent work which has been reported in too many periodicals and books to be readily available to officers fighting the disease.

THE QUESTION OF "SLEEP CENTRES."

A RECENT number of the *Medizinische Klinik* (Sept. 21st) contains two articles on the subject of "sleep centres," each of them based on a case in which sleep was a prominent symptom. The paper of Dr. Edwin Hirsch is the more considerable, for it not only discusses the previously reported cases, but reviews the whole question from a general and philosophical aspect. At the time of the influenza epidemic of 1890 Mautner suggested, on account of certain symptoms with which abnormal sleep was associated, that there was a sleep centre in the grey matter of the third ventricle. By a lesion there, he believed, the paths for stimuli from the periphery to the cortex were interrupted and as a result sleep supervened, while cortical impulses were prevented from reaching the periphery and, thus confined, caused dreams. He drew attention to the proximity of the oculo-motor nuclei to this region and associated with it the drooping of the eyelids before and during sleep. Mautner's views were adopted by Economo, Nonne, and others in the earlier investigations into encephalitis lethargica. Trommer, in a monograph on sleep, assigned an active part to the optic thalamus, where he suggested there was a centre for the inhibition of the waking state; with this negative function was combined the control of all those positive acts without which sleep becomes difficult or even impossible. The seeking of a resting-place, the placing of the body in a posture which encouraged sleep, the position of the eyelids and of the eyes in sleep, all corresponded, he urged, with an inhibition of the waking condition, and led up to an assumption of control by the autonomic system so that the pupils became small, the breathing altered, and the distribution of the blood was changed—the whole state of the body indicating at once an entirely changed attitude towards stimuli from the world without. He attached great importance to the change in the position of the eyes. In the waking state they are slightly converged and look slightly down, in sleep they diverge and turn upwards. Freud saw in the sleep position a tendency to return to the posture of the embryo—head bent forward on the chest, arms flexed, legs drawn up. Now, while Mautner's argument may be true that the blocking of the sensory paths produces sleep, it does not follow that the portion of brain, the destruction of which causes the blockage, deserves the name of sleep centre; in fact, it is probably not a centre at all. But if the blockage be brought about by an active switching-off or side-tracking of the sensory impulses by a central mechanism whose peculiar attribute it is to switch them off and on, then the site of that mechanism certainly deserves the title of centre—either sleep centre or waking centre. Is there any indication of the whereabouts of such a centre?

Hirsch's case was one in which an abscess had destroyed the medial part of the left thalamus, and extending posteriorly to the level of the posterior commissure had eroded below the commissure and above the red nucleus, but left both these structures intact. The patient had shown a left hemiplegia, slight right hemiparesis and pyramidal signs on both sides; the pupils were small and equal; the speech had a nasal quality and became slower and more mumbling, like that of a person falling asleep; the legs were rigid in the so-called position of sleep —i.e., partly flexed at hip and knee. General bodily sensation was intact, as also were sight and hearing. The patient slept nearly all the time, but she could be roused by ordinary means. When wakened she opened her eyes, looked round in surprise, and immediately fell asleep again. It was only by constant stimulation that she was kept awake for examination. Two days before death she remained awake for several hours and then fell into a sleep which lasted till her death. The most noteworthy point as regards Mautner's theory is that the sensory paths were anatomically and functionally intact. The abscess extended below the posterior commissure, yet there were no ocular palsies; and Hirsch argues that the region above the oculo-motor nuclei was only affected towards the end of life. In two other cases—viz., those of Adler and Lucksch and of Pette—this same region was also involved, so that there is some ground for locating a sleep centre (or rather a sleeping-and-waking centre) there. The almost constant affection of this area in encephalitis lethargica lends support to this localisation. The question, however, arises whether other parts of the brain may not also possess a controlling power over sleep. Hirsch notes the severe lesion of the left thalamus, both in his own case and in that of Pette. He recalls the connexion of the medial part of the thalamus with the corpus striatum, which probably controls instinctive action, and with the frontal cortex. His argument in this part of the paper is much less rigid than in the earlier portion, but he concludes that the thalamus may initiate the action of the sleep mechanism and (by its connexion with the corpus striatum) cause the instinctive sleep position to be taken up, while by means of its connexion with the frontal lobes it places sleeping and waking to some extent under the control of the will. The thalamus is the centre for the psycho-reflex and sleep is a protective psycho-reflex. We do not only fall asleep when we are exhausted, but in order that we may not become exhausted, and long before exhaustion occurs, we experience a desire for sleep and a weariness that leads to sleep.

These considerations lead the author to postulate at least two sleep centres, one in the left thalamus, the other in the grey matter above the oculo-motor nuclei, and he believes that true sleep can only supervene pathologically when both centres (or one centre and the path connecting it with the other) are put out of action. In connexion with this paper we may recall the upset of the sleeping-and-waking rhythm that occurs both during and after encephalitis lethargica. In the acute stage patients sleep for days with little interruption, and afterwards many of them lose the normal power of going to sleep and perhaps only sleep when exhausted; others are excessively wakeful for part of the acute stage before becoming lethargic. It is the normal alternation that is disturbed. Most of these cases present some oculo-motor palsy, and they therefore lend considerable support to Hirsch's argument for a sleeping-and-waking centre in proximity to the oculo-motor nuclei. The theory that a higher associated centre exists has much in its favour, but in view of our lack of exact knowledge of the functions of the thalamus and corpus striatum, the arguments for its localisation are inadequate.

RECENT ADVANCES IN PHYSICAL CHEMISTRY.

That colloidal behaviour is of paramount importance in physiological problems, and more especially in questions of cellular physiology, cannot be doubted. Unfortunately, the whole subject is surrounded by such a close mathematical veil that it is almost impossible for the ordinary student to approach it intelligently. This has resulted in the development of a special school of "colloidal chemists," and consequently colloids have come to be regarded as substances with a set of laws and properties entirely to themselves. Thus they are said not to obey the ordinary laws of valency in their combinations; they exhibit the peculiar phenomena of adsorption, governed by that equally peculiar equation of Freundlich. The late Dr. Jacques Loeb attacked these views, and attempted to simplify the whole theory of colloidal behaviour. A number of his early papers were collected and published in book form in 1922.[1] Vol. XLVII., 1924, of the Studies from the Rockefeller Institute for Medical Research contains a series of papers in which details of further experiments are given. It will be remembered that Dr. Loeb showed that the irregular combination of proteins with acids and alkalis was not due to any peculiar property of these substances as colloids, but resulted from the fact that no account had been taken of the hydrogen-ion concentration of the medium. He went on to show that proteins could be made to combine with acids and alkalis in strict accordance with the ordinary valency, or stoichiometric laws, provided that the hydrogen-ion concentration of the protein molecule was kept constant. At the same time he emphasised the importance of the isoelectric point of colloids in influencing their behaviour, all the experimental results agreeing with the Donnan membrane equilibrium theory. Dr. Loeb's work on colloidals must be regarded as a great advance, since, like all important researches, it has substituted simple for complex theories. The three papers in the current issue of the Rockefeller Studies are of particular interest since they contain accounts of experiments in support of Loeb's theory.

THE LATE MR. ARTHUR HILL TREVOR.

Arthur Hill Trevor, of the Inner Temple, Barrister-at-law, who died in his sleep after a strenuous day's shooting on the moors round Elvanfoot, Lanarkshire, took so wide and active an interest in the work of the Board of Control, of which he was a Commissioner, and was so unremitting in his efforts to ameliorate the conditions and to advance the treatment of persons suffering from mental illness, that his sudden and altogether unexpected death some weeks ago occasions a public loss and deprives the Commissioners of a colleague of great personality, who was highly esteemed as a friend by each one of them. Born in 1858, the only son of Charles Binney Trevor (an Indian Civil servant), Arthur Trevor was educated at Winchester and at Corpus Christi College, Oxford. He was in those days a well-known cricketer and, indeed, a famous bat. In 1884 he was called to the Bar, and for some years practised on the South-Eastern Circuit and at the Sussex Sessions, and was the author of a book published in 1904 on The Solicitors Act of 1888, with special reference to Procedure and Practice. Appointed Secretary to the Commissioners in Lunacy in November, 1905, he rapidly acquired so close and deep an interest in his new work that it was no small satisfaction to him when two years later he was chosen to fill the vacancy on the Commission created by the death of Mr. G. H. Urmson. Trevor did a prodigious amount of work, not only when on circuit with a medical colleague inspecting institutions and paying other statutory visits to patients, but also in the preparation of reports, memoirs, and other literary work on behalf of the Board. He also accomplished a great deal as a voluntary member of various committees towards a better understanding of mental disorders and the advancement of their treatment; mention, for instance, may be made of the active share he took in the work of the Committee of the Medico-Psychological Association in connexion with Lord Justice Atkin's Committee upon Criminal Responsibility, before which, later on, Trevor, in conjunction with one of his medical colleagues, gave evidence. He also gave evidence before the Royal Commission upon the Care of the Feeble-Minded in 1908; and, upon the passing of the Mental Deficiency Act and the reconstitution in 1913 of the Board of Control, he threw himself heartily into the widened sphere of action of the Commissioners. In 1910 the Medico-Psychological Association, mindful of his active interest in their work and his manifest wish to coöperate more actively than the fulfilment of his official duties perhaps demanded, elected him as an honorary member—a distinction which had only once previously been conferred upon anyone other than a medical man. He was a powerful link between the professions of law and medicine. This was perhaps specially exemplified in him by his constant endeavour to mould administrative action so as to conform, as far as practicable, to medical aspirations. In this connexion his bent of mind, humane and progressive, was conspicuous in his persistent efforts to secure legislation to facilitate the prompt treatment of mental disorder in its incipient and early stages. Up to within a few days of his death he had been preparing with much zest evidence for the Royal Commission on Lunacy Administration and the Early Treatment of Mental Disorder; and at the first meeting of the Commission on Oct. 7th a moving tribute to his memory was paid by the chairman, the Rt. Hon. H. P. Macmillan, K.C.

THE WORK OF BRETONNEAU.

In his presidential address on Bretonneau: His Life and Work, delivered before the Section of the History of Medicine of the Royal Society of Medicine on Oct. 15th, and which was accompanied by an epidiascope demonstration, Dr. J. D. Rolleston said that, with the exception of the chapter on the history of diphtheria in the monograph recently issued by the Medical Research Council, little attention had of late been given in this country to Bretonneau, whose name was chiefly remembered in connexion with diphtheria, without sufficient credit being attached to his other services to medicine. By his clinical perspicacity in conjunction with elaborate post-mortem examinations, Bretonneau had done as much for the study of acute infections as Laënnec had for chronic diseases. Bretonneau was a remarkable personality whose medical achievements could be summarised as follows: (1) He established the specificity of diphtheria and typhoid fever. (2) By his doctrine of specificity he foreshadowed the germ theory of disease. (3) In opposition to the physiological school headed by Broussais, who had discarded the materia medica and reduced treatment to bleeding, leeching, and a starvation diet, he made several valuable contributions to therapeutics. Apart from his being the first to perform a successful tracheotomy for laryngeal diphtheria and to devise a method of administration of quinine which was characterised by Trousseau as a happy combination of the methods of Sydenham and Torti, he resuscitated the use of purgatives in dysentery and of martial preparations in anæmia, and was the first to employ belladonna in constipation and enuresis, and to introduce cod-liver oil into France for the cure of rickets. (4) His work, especially his researches on diphtheria, by which he showed that the Syriac ulcer, malignant angina, and croup were the same disease, illustrated the practical value of the study of the history of medicine.

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[1] Proteins and the Theory of Colloidal Behaviour. By Jacques Loeb. London and New York: McGraw Hill Book Co.

THE SURGICAL WORK OF ANY YEAR.

ONE of the most wonderful surgical publications in the world, too little known in this country, is a report on general surgery published annually[1] in Berlin. It deals only with the literature of one year, and yet each year we open it with amazement both at the vastness of the field it embraces and at the skill and patience with which the material has been sifted and reduced to order. It consists of a series of brief reports on the surgical work of the year in its various branches, and each report is followed by a full list of all papers published in that branch. The literature of the whole world is included, and the work of British, French, and American surgeons receives adequate attention and quite impartial criticism. The reports consist essentially of short and pithy abstracts of the papers, connected together into a coherent and lucid account. It is therefore possible in a few moments to discover the whole literature on any special point, to gather the leading features of each paper and the general trend of surgical opinion, and to form a shrewd estimate of those papers which are worth consulting directly. Perhaps the best way to give some idea of the nature of the book is to sketch the contents of a small subsection. It appears that in the year 1921 110 papers were published on cerebral tumours, excluding those of the hypophysis. The report deals generally with the statistics of these papers, and then passes on to discuss in detail those relating to gliomata and endotheliomata. Stressing the importance of early diagnosis and of early surgical treatment, it refers to the curious and dangerous fact that salvarsan will often produce temporary relief. X ray methods of diagnosis are briefly outlined, aural symptoms are discussed, and a rapid sketch is given of cases which have been described with tumours showing some peculiar feature. We pass on to the experimental production of tumours and the possibility of their traumatic origin, and the report concludes with a discussion on the technique of removal, the value of decompression, and the possibility of relieving a secondary hydrocephalus. To concentrate such a mass of information into an article of less than six pages, to make that article readable, and to infuse it throughout with a critical appreciation is a very great feat, and those who are acquainted with the prolixity of most German authors would scarcely have expected that it would be accomplished. But to find the same terse completeness all through a volume of a thousand pages is to an Englishman a little disquieting. It reveals an organisation, and a coördination and intensity of effort without parallel in this country. Of the value of the volume to those engaged in progressive surgery there can be no question at all. Indeed, the very existence of such a volume renders a knowledge of German important to any surgeon who would remain abreast of the literature of his subject, and imperative to one who wishes to assist in its advancement. There is, moreover, food for serious thought in the note which appears within the cover by way of preface. It states that at the Kaiser Wilhelms Akademie, Berlin, all the periodicals referred to in the report can be had for the asking by any medical man, student, or apothecary, on payment of an annual registration fee of one mark, to take home if he wishes. It is true that in London the privileged few who can afford it may obtain some such service, and if they can read German they can make use of the Jahresbericht. But we have no service so complete as that to which this report furnishes in Berlin so easy a key.

THE annual dinner of the Royal Society of Medicine will be held at the Hotel Victoria, London, on Wednesday, Nov. 26th, at 7.30 for 8 P.M.

THE quinquennial election of Direct Representatives of the medical profession to the General Medical Council will take place next month, and nominations must be in the hands of the respective registrars by Nov. 6th. Notices of election will be found in the advertisement columns. The present Direct Representatives are as follow, the date, added in parentheses, being that of first appointment. For England: Dr. J. A. Macdonald (1911), Sir T. Jenner Verrall (1912), Dr. R. A. Bolam (1920), and Mr. E. B. Turner (1920). For Scotland: Sir Norman Walker (1907). For Ireland: Dr. Leonard Kidd (1906).

THE jubilee celebrations of the London (R.F.H.) School of Medicine for Women take place this week-end. They include a dinner at the Guildhall, an evening party at the School, and a thanksgiving service at St. Paul's for the increased opportunities afforded to women students of medicine during the last 50 years. Those of the alumnæ of this school who are also past students of St. Mary's Hospital may feel that there is some irony in this thanksgiving at the very moment when St. Mary's Hospital has shut its doors to women after eight years of co-education, during which time well over 200 women students have passed through its school. But the fact that all Scottish, Irish, Welsh, and English schools outside London are open to them, and that in London co-education is available at King's College Hospital, Charing Cross, Westminster, and (for 12 chosen women) at University College Hospital medical schools, shows that while set-backs are to be expected from time to time, the advance of facilities for women's training in medicine has been very great. We congratulate the London (R.F.H.) School of Medicine for Women on its jubilee; it has good reason to be proud of its record.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCIII.—TREATMENT OF CHOREA.

CHOREA (χορεια, dancing) is a nosological label which has been attached to many clinical manifestations. The Chorea Sancti Viti of Paracelsus, dancing mania or chorea major of subsequent authors, belongs to the hysterical manifestations of disordered motion. The chronic choreas, or symptomatic choreas depending on degenerative changes of the motor cortex and its paths, for example, the syndrome described by Huntington in 1872, are also distinctive. Another group of cases sometimes referred to as "choreiform affections" or "pseudo-choreas," should be called "habit spasm" or "tic." Chorea minor, or Sydenham's chorea, alone is referred to in this article; it is an acute disease of children characterised by irregular purposeless involuntary movements, a varying amount of psychical disturbance, and the frequency with which it is associated with endocarditis and arthritis.

Prevention.

The realisation of the predisposing factors in the life of a girl or boy can do much to ward off an attack of chorea. It is curious how rarely there is a history of chorea in the parents, whilst the protean manifestations of rheumatism are so common. Girls are affected two to three times as frequently as boys, the susceptible age being from 7 to 12 years. The girl in whom the disease is to be anticipated may be tall for her age, thin and anæmic. She is mentally bright, intelligent, and over-conscientious; if at school she may be at the top of her class and facing "special work" for a scholarship. In addition to this mental activity she is emotional and fidgety; in fact, chorea has been cryptically described as exaggerated fidgetiness. Rheumatism in some form is extremely common in the history of these children. The condition of the tonsils therefore requires consideration, for they are often enlarged and unhealthy, and may well be the portal of entry for the rheumatic virus. Fright, worry, and excessive study, though not causes, render the rheumatic child more liable to an attack of chorea; and the avoidance of these factors lies within the field of preventive medicine.

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[1] Jahresbericht über die gesamte Chirurgie und ihre Grenzgebiete. XXVII. Jahrgang, Bericht über das Jahr 1921. Edited by Dr. Carl Franz, Berlin. Berlin: Julius Springer. 1924. Pp. 996. Price 16.40 dollars.

Early treatment at the onset of symptoms will nearly always cut short an attack, or at least lessen its severity. The earliest symptoms fall into three groups:—

1. *Change of Mentality.*—The child becomes headstrong, resentful of reproof, cries with little provocation, and loses power of concentration.

2. *Movements.*—She is much more fidgety, and is constantly changing position. Her facial muscles show little irregular jerky movements, and her hands are less controlled, as seen by her handwriting.

3. *Muscular Weakness.*—This is always present though commonly overshadowed by the movements.

General Treatment.

There is no specific drug for chorea. The one essential of successful treatment in all cases is rest and quiet, for the movements cease during sleep. This is the opinion of most modern pediatricians, founded on close observation under hospital conditions of children who have been treated as out- and in-patients, with and without medicine. Chorea does not get well by itself, but it is clear that drugs alone will not achieve a cure, for cases drag on month after month as out-patients, rapidly to improve when admitted to hospital, though the same drugs are used. The child must be put to bed and kept there, exception being made only in those few cases where confinement to bed accentuates the nervous disturbances. In this case the child may be allowed up to lie on a sofa. If the movements are at all forcible, bed must be insisted on, care being taken to see that the child cannot injure itself by constant rubbing, for such sores heal tardily. In really violent cases the mattress should be on the floor, and the case constantly watched. No mechanical restraint is ever justified. The question of whether a trained nurse is necessary must be answered in each individual case. The discipline of a sympathetic, but firm, nurse is of great value, and advisable in severe cases where sleep is much disturbed, but milder cases may be better without the introduction of a stranger, provided the mother is sensible.

No special restrictions are called for in the diet, which should be liberal and appetising. Hydrotherapy is a most valuable aid in producing rest and sleep—e.g., shampooing the head twice a day for ten minutes is often successful. Hot or cold packs are excellent therapeutic measures, and are often more effective than soporifics. The hypodermic needle should never be used. When rest and quiet have been assured, two aspects of the disease must receive attention: (*a*) nervous disturbances, and (*b*) rheumatic manifestations.

(*a*) *The nervous disturbances* may call for sedatives, the aim being to produce a certain amount of sleep rather than to abolish the movements. Chloral hydrate gr. vii., trional gr. v., or chloretone gr. v., are the best, and should be given three times a day. (Dosage for a child of 7 years.) Bromides may be usefully combined with the chloral, while chloretone is best given as an emulsion with liquid paraffin or cod-liver oil. These drugs should not be pressed, *for they are not curative*, and if chloretone is employed a watch must be kept for an erythematous rash and incontinence of urine.

(*b*) *Rheumatic manifestations* include pyrexia, a sore-throat, and less often vague pains in the limbs, and call for treatment with salicylates which should be given with alkalis, so long as there is any rise in temperature. I do not think that a prolonged course of salicylates protects the heart, and it certainly has no beneficial effect on the chorea. A sore-throat or even enlarged tonsils should be painted twice a day with—

℞ Salol .. .. gr. xxx.
Glycerini .. .. ʒ ii.
Alcohol 90 per cent. .. .. ad ℥ i.

When the active stage is subsiding, and before the child is allowed up, a short course of arsenic is valuable. It should be given well diluted, in tonic doses only. During convalescence, when the movements have almost ceased, iron should be given in all cases. Cod-liver oil and malt for 2–3 months should be ordered for those who have lost weight. Massage and exercises are beneficial provided they are not started too early. The exercises should stop short of fatigue, and at first should be crude and easy to perform; such as touching the tip of the nose with the finger of an outstretched arm, or pointing the toes while walking along a line or following the pattern of a carpet. Later, games requiring more skilled control may be employed—e.g., building castles with bricks or cards, knitting, exercises on the piano, and so on. Such exercises hasten the recovery of voluntary control of movement.

Treatment of Special Conditions.

Heart.—We have no specific by which to protect the heart from infection, and must trust to early and thorough treatment of the chorea itself to reduce the incidence of cardiac lesions. When there is evidence of the myocardium being affected,—namely, cardiac enlargement, increased pulse-rate, or a diastolic bruit at the apex—we must rely primarily on rest as a therapeutic measure. The rest in bed must be complete, and prolonged until there are no further signs of activity. This may even entail six months' rest.

Chorea Paralytica.—The so-called paralytic cases of chorea are those in which the movements are almost absent, and the muscular weakness so pronounced that the child is virtually paralysed. Such cases call for very careful nursing, and ample light and nourishing diet. Stimulants will be required. Massage must be begun earlier so as to maintain the muscular tone and nutrition pending the return of voluntary movements.

Chorea Insaniens.—In those cases in which the movements are so violent and the mental disturbance so great that the patient is temporarily insane, feeding is difficult. The best forms in which to give nourishment are the semi-solids, such as jellies and custards. Artificial feeding may even be necessary. Sedatives may be pushed. The danger is exhaustion.

Hyperpyrexia, which is rare, and must be treated by salicylates and hydrotherapy.

Chorea Gravidarum.—The usual onset is in the third month of the first pregnancy in very young women. The general treatment of chorea will be successful in the great majority of cases, and only very occasionally will it become necessary to terminate the pregnancy.

After Care.—Whenever possible the patient should be sent into the country or to the sea coast for a prolonged convalescence, since the importance of chorea lies in its cardiac complications.

H. E. A. BOLDERO, B.M., B.Ch. Oxf.,
M.R.C.P. Lond.,
Physician to the Evelina Hospital.

Special Articles.

THE PANEL CONFERENCE:
PREPARING FOR THE ROYAL COMMISSION.

THE annual conference of representatives of local medical and panel committees met at the Central Hall, Westminster, at 10 A.M. on Thursday, Oct. 16th, Dr. H. G. Dain, of Birmingham, presiding for the last time.

Annual Conference Dinner.

Before the formal business was taken it was agreed to appoint at each annual conference a dinner committee formed of the chairman and seven other members in the Home Counties to arrange for the holding of a dinner at the following conference, to which members of the Insurance Acts Committee (hereinafter called simply I.A.C.) amongst others should be invited as guests. At a later stage the seven following names were suggested and approved —viz., Dr. H. S. Beadles (West Ham), Dr. H. J. Cardale (London), Dr. F. Challans (West Ham), Dr. A. P. Eldred (Essex), Dr. J. W. Hill (East Ham), Dr. C. F. J. Scott (Middlesex), and the secretary for the time being of the London Panel Committee.

Personnel of the Royal Commission.

On the motion to receive the report of the Committee for 1923–24, Dr. Brackenbury referred to the negotiations for the 1924 Medical Benefit Regulations, all of which were settled to his satisfaction, except one certification rule. With regard to the Royal Commission to inquire into the working of the national health insurance system, the I.A.C. had asked for a comprehensive inquiry, and the terms of reference had been submitted to the Committee and accepted by them. They could not, however, regard the personnel as satisfactory; they had hoped to have a small, impartial and weighty Commission able to issue a unanimous report, without which the position might be no better in two years' time than it was now. The carefully worded paragraph in the report setting out the I.A.C.'s view is as follows:—

> The Committee did not consider that the personnel of the Commission as a whole fulfilled the requirements, and requested the Minister of Health to receive a small deputation from the Committee to discuss the whole matter. This was agreed to by the Minister of Health, and Drs. Brackenbury, Bolam, and Dain, and the Medical Secretary waited upon him on July 30th. The result of this deputation is considered very unsatisfactory. The Committee has found it necessary to inform the Minister of Health that it is not satisfied with the personnel of the Royal Commission, and is doubtful whether the Commission has that weight which the public might expect in respect to a body which is to report on a matter undoubtedly affecting the future developments not only of the insurance system but of public health in this country. Exception may be specially taken to the presence of Sir Alfred Watson as a member of the Commission. He has been so peculiarly identified with the finances of the Act and his authority has so frequently been involved in acute controversial financial questions that it appears to the Committee that he might more properly have placed his experience and views before the Commission as a witness. However, having made this protest the Committee proposes to place before the Commission its evidence which will be primarily directed to the broad issues comprised in the terms of reference to the Commission.

The Commission had asked for evidence from the I.A.C. as soon as possible, but obviously the memorandum of evidence, Dr. Brackenbury said, must go before the Council of the B.M.A., in so far as it affected other than panel practitioners—e.g., medical officers of health, consultants, pathologists. It was, however, hoped to circulate a draft for the consideration of panel committees in December.

Remuneration.

A motion by Bury, to the effect that the time had now arrived when the panel practitioner should be paid in full for every person on his list, revealed a belief that different parts of the country receive in effect different values for their capitation fee. The Southport representative believed that in his area 8*s.* 2*d.* per head was received instead of 9*s.* 6*d.*, and recently every practitioner had had large numbers taken off his list, many of whom had to be reinstated later. Cambridge believed the capitation fee received in that area to be 9*s.* 11*d.* Dr. Brackenbury, while regarding the central pool as in order, agreed that there might be mistakes in its distribution, although the distribution must necessarily be from the top. There was no longer any unallocated residue, but he thought the time had come when the Ministry of Health might be asked to look back and see how, as a matter of fact, the pool had worked out from year to year, what had been the number of insured persons, and what the amount paid per name on the doctor's list.

Local Health Administration.

A motion by Warwickshire urged the special Committee[1] appointed to prepare evidence for the Royal Commission to take into consideration the possibility of reforming the local organisation of public clinical and preventive medicine, particularly the application of the scheme drawn up by the B.M.A. in 1918 defining the principles governing any steps to coördinate or reconstruct local public health administration. Dr. Brackenbury felt sure the Conference would accept without demur any steps leading to the unification of local health services. It should not be forgotten that there was another Royal Commission sitting, that on Local Government, for more than a year past.

Evidence Before the Royal Commission.

On a motion by Dr. Gordon Ward that the experience and views of insurance practitioners were of such paramount importance as to demand separate and authoritative presentation to the Royal Commission, Dr. Brackenbury pointed out that in regard to general matters it would be the endeavour of the Evidence Committee to express the opinion of the medical profession as a whole, and in what he might call intra-insurance matters to be guided by the opinion of panel committees. The evidence to be tendered would be of very wide scope.

Inequality of Benefit.

A motion by Kent to remove at the earliest possible moment from approved societies the administration of sickness benefit gave rise to an interesting discussion. Inequality of benefit offered by various societies is admittedly leading to some hostility towards the panel practitioner and militates against the success of the insurance scheme. Dr. Brackenbury suggested a clear separation of medical benefit and cash benefits so that the medical insurance service could get on with its own job of medical benefit in the widest sense. Cash benefits might then be left in the hands of the voluntary agency, the two being connected inherently by the system of certification. Dr. Beadles set out his well-known views on the desirability of entrusting medical (including additional) benefit to a local health committee, funds being equalised in a central pool, deposit contributors who are at present not insured getting their proper share. The present system is eminently unsatisfactory, in which the sum paid out as a maintenance wage varies according to whether it is called sickness, unemployment, accident, or old age benefit. Amalgamation of the whole of State insurance (medical benefit excepted) would, he is satisfied, rid the system of the Poor-law stigma.

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[1] The personnel of this Committee is as follows:—
Ex-officio: Mr. J. Basil Hall, M.C.Camb. (Bradford), Dr. H. B. Brackenbury (Hornsey), Dr. R. A. Bolam, LL.D. (Newcastle-upon-Tyne), and Mr. N. Bishop Harman (London).
Appointed by B.M.A. Council: Dr. J. H. Badcock, L.D.S. (London), Prof. H. R. Dean, F.R.C.S. (Cambridge), Lt.-Col. F. E. Fremantle, M.P., O.B.E., M.Ch., F.R.C.P. (Hatfield), Prof. A. J. Hall, M.D., F.R.C.P. (Sheffield), Mr. Somerville Hastings, M.P., M.S., F.R.C.S. (London), Dr. R. Wallace Henry (Leicester), Sir Thomas Horder, Bart., M.D., F.R.C.P. (London), Dr. W. J. Howarth, C.B.E. (London), Sir Ewen J. Maclean, M.D., F.R.C.P. (Cardiff), Mr. E. W. G. Masterman, F.R.C.S. (London), Dr. John Stevens (Edinburgh), Mr. E. B. Turner, F.R.C.S. (London), Sir Cuthbert S. Wallace, K.C.M.G., C.B., F.R.C.S. (London), Mr. H. J. Waring, C.B.E., M.S., F.R.C.S. (London), and Dr. Mabel Ramsay (Plymouth) (nominated by the Medical Women's Federation).
Appointed by Insurance Acts Committee: Dr. H. G. Dain (Birmingham), Dr. E. R. Fothergill (Hove), Dr. H. J. Cardale (London), Dr. J. G. McCutcheon (Glasgow), Dr. J. P. Williams-Freeman (Andover), Dr. R. W. Craig (Dalkeith), Dr. H. S. Beadles (Romford), Dr. J. W. Bone (Luton), Dr. T. Wood Locket (Westbury, Wilts), Dr. P. Macdonald (York), Mr. H. S. Souttar, C.B.E., F.R.C.S. (London), and one other (to be appointed to the vacancy caused by Dr. Brackenbury now being an *ex-officio* member).

Fees for Anæsthetics.

The report of the I.A.C. lays down what the Committee considers to be the circumstances under which, in accordance with resolutions of the Conference, a fee may be claimed from the local practitioners' fund in respect of an anæsthetic administered to one of his insured patients. Dundee proposed an amendment to extend the scope of the statement to include circumstances under which the fee was chargeable to the patient, and it was referred to the I.A.C. to prepare and circulate a clear statement of wider scope. East Sussex desired to limit the occasions on which a fee should be payable out of the practitioners' fund to the administration of an anæsthetic for an operation by a panel practitioner within the terms of his contract. The Conference evidently preferred local option. On an appeal from Northumberland to consider the difficulties of practitioners in small towns with local hospitals, the question was raised, and answered in the affirmative, whether the Distribution Committee on which Dr. Dain had a seat could consider the loading of local pools according to the amount of anæsthetics given.

National Insurance Defence Trust.

On the report of the trustees Dr. Brackenbury answered the doubt expressed in some quarters that with the capitation settlement and the appointment of a Royal Commission there was no longer any need for such a fund. Possibly not, he said, for many years, "but we never knew." A large sum of money behind them was always a help to negotiators. Dr. A. Cox reported that amounts to a total of £1991 had been received since the report (showing £66,000 odd) was made up to August 31st, 1924. Criticism was directed against the loan to a panel committee at a low rate of interest for the establishment of a public medical service. It was, however, pointed out that this item came well within the objects for which the fund was instituted. Members of the Conference were in favour of an ultimate widening of the scope of the trust fund to cover the whole expense of the I.A.C. and of the annual panel conferences.

The Thousand-Pound Fine.

In regard to the case of two panel practitioners in Lancashire charged with making improper charges to insured persons for medicines supplied, who were fined £1000 by the Ministry of Health, the report contained the considered opinion of the I.A.C. that the penalty was out of all proportion to the offence for the following reasons :—

(1) That after much investigation, in addition to some few cash cases, there were only 13 cases of charges being made amounting to just over £60 spread over a period of six years ;

(2) that the investigation was only made possible by the coöperation of the two practitioners themselves in placing their books at the inspection of the Insurance Committee ;

(3) that the practitioners did not make direct suggestion of a charge except in three cases ;

(4) that no further accounts were rendered by the doctors after they were warned ;

(5) that the sums received from patients had been refunded ;

(6) that the action of the doctors was rather in ignorance of the law than with intent to evade the obligation with a view to private profit ; and

(7) that the doctors concerned enjoyed a reputation for good work and character.

A motion was brought at the Conference by Manchester to the effect that the vindictive action of the Ministry in this case disclosed a position of such danger to panel practice that in the event of a repetition of such action the I.A.C. be instructed to take immediate steps for notices of resignation to be sent in by all panel practitioners. The story of the case was brought up to date by the reading to the Conference of two letters which had since passed between the secretary of the B.M.A. and the Ministry. Dr. H. F. Oldham (chairman, loc. med. comm., Lancs) queried whether such a fine could properly be regarded in the nature of a penalty at all. A fine of £250 would have met the case and acted as a deterrent. Such a large sum, he felt, would not have been awarded by a court of law, and awakened a feeling of distrust of the Ministry to the detriment of the service. It was, he agreed, clearly necessary in such a case for the penalty substantially to exceed the profit made. Manchester and Salford, by their representatives, supported the validity of the position that the medicine prescribed by a panel doctor is more valuable to the patient than the medicine in which he has no confidence. Another representative countered with the remark that the mental suggestion of doctors' physic was in the mind of the Ministry of Health in inflicting a severe fine, the Ministry desiring to impress the real facts of the case on the practitioners of Lancashire. It was further pointed out that the offence was committed by a practitioner of little experience, who was told that charging for medicines supplied was customary and who after being informed to the contrary only gave out medicine in two cases in the district, one private in nature, the other a dying man. Dr. A. E. Larking instanced a similar case which had occurred in Bucks, where a fine of £5, considered sufficient by the Insurance Committee, had been increased by the Ministry to £100. Dr. Oldham reiterated, in defence of the Lancashire panel, that they were all anxious to carry out strictly the wording of regulations ; there was no such feeling as had been attributed to them. In the case under discussion, the habit of paying for medicines had grown up in the practice, and after 1921 there was only evidence to show that the regulations had been broken in about three cases. The doctors had never tried to induce patients to take their physic ; the patients persisted in paying. The serious points in the case were that the Insurance Committee, acting under instruction from the Ministry, had spent 47 days in house-to-house canvassing and in getting bills produced, and when Bury could no longer afford the expense the Lancashire committee took on the inquiry. This inquiry practically exonerated the doctors of evil intent and there remained only mistakes which justified no such excessive or even vindictive penalty. The practitioners had, in effect, been deprived of a whole year's remuneration. The Ministry surely had no right to dictate to an insurance company what its action should be. After prolonged discussion two resolutions proposed by Dr. Brackenbury and seconded by Dr. Oldham, as follows, were put to the meeting and carried with acclamation :—

1. That the Conference has heard with very great regret the letter from the Ministry, dated Oct. 14th, and is of opinion that the fine inflicted in the case referred to is greatly excessive, taking into consideration all the circumstances disclosed in the report of the Inquiry Committee and that it is contrary to the principles of English justice to assume offences over and above those proved at the inquiry and to inflict any penalty in regard to such unproved offences.

2. That the Conference further protests against the procedure of the Minister in this case in so far as the Ministry which itself had to pronounce judgment, directly invited the Lancashire Insurance Committee to revise the con

clusions which that Committee had reached after inquiry in accordance with the regulations.

Automatic Transfer.

On a motion by Ayrshire, now that unlimited choice is allowed to panel patients, to revert to the system of automatic transfer, it was learned that the I.A.C. had already asked the Ministry to make this change, for which its clerks were pressing, on the ground of economy of time.

Public Medical Service for Dependents.

Devonshire desired to ask the I.A.C to obtain the opinion of panel practitioners generally in regard to support being given to public medical service schemes on the lines of the model scheme drawn up by the B.M.A. The motion was withdrawn in order to leave entire liberty to each insurance area to act as it thought best.

Retirement of Chairman.

At the close of the formal business Dr. P. Macdonald rose to propose a vote of thanks to Dr. Dain, who after five years' service was retiring from the charmanship of the annual conference. Always a good chairman, Dr. Dain had, he said, become first-rate, with a rare combination of good temper, tact, and ability. In reply Dr. Dain expressed his gratitude to the Conference for having given him the opportunity of perfecting himself in the art of chairmanship. Dr. J. W. Bone and Dr. Brackenbury were also accorded warm thanks. Dr. E. K. Le Fleming (Dorset) was elected chairman of the Conference for the coming year.

The Conference closed at 5.45 P.M.

PRESENTATION TO DR. BRACKENBURY.

A RECEPTION was held at the King Edward VII. Rooms, Hotel Victoria, London, on Wednesday evening, Oct. 15th, for the purpose of making a presentation to Dr. H. B. Brackenbury. There was a large gathering of medical men and women whose work had brought them into contact with Dr. Brackenbury, especially in the sphere of medical insurance practice. The guests were received by Dr. H. G. Dain and Mr. H. S. Souttar, respectively chairman and hon. treasurer of the Testimonial Fund. After a delightful preliminary entertainment of music and dancing, the formal presentation took place.

Sir Humphry Rolleston spoke for the medical profession as a whole. He said: This is a great, if not unique, occasion—a spontaneous, splendid tribute by members of the medical profession, usually individual and somewhat inclined from their circumstances to plough a lonely furrow, to one who for years has rendered them great services without fear and without any thought of reward. The immense success and popularity of this testimonial express the profession's keen sense of gratitude to Dr. Brackenbury for his wise leadership, his constant guidance of the difficult work of the Insurance Acts Committee, and his skilful advocacy of the claims—monetary and of other kinds—of the insurance practitioners during the last eight years; especially before the Ministry of Health, at the Board of Arbitration as to the capitation fee in 1920, and the Board of Inquiry in January of this year. His conduct of affairs on the last occasion was such a triumph that it drew from all, even his official opponents, open admiration for his broad knowledge, ability, and dignity. It must not be forgotten that this success was but the culmination of many years' laborious training in public affairs, and unselfish work on behalf of the British Medical Association, which has already shown its appreciation of these services by conferring on him its blue ribbon —the gold medal of the Association—at the Bradford meeting. It is pleasant to know that there are such men amongst us, and surely we honour ourselves by acclaiming Brackenbury a high-minded gentleman of great moral courage, a medical statesman of exceptional ability, the friend and benefactor of the medical profession.

Dr. Dain said: During the passing of a generation there had been a change in the relation of medical practitioners to the public and to one another. A generation ago they started professional life as individualists, going out into the world in solitary fashion. The patient only saw his doctor when his disease was already a serious thing. All that was changed. A tremendous decrease in the death-rate had gone hand in hand with an increase in the doctor's work. He was now called in for small ailments; a sense of responsibility had developed among the public for the illness of the individual, in origin no doubt due to a desire for protection against infectious disease. The medical profession was now asked for its collective opinion on matters of public importance and for concerted measures of treatment. Doctors met and talked things over. In this change Dr. Brackenbury had played a leading part. We were there to honour him as one of the greatest leaders the medical profession had ever produced. With unique experience of public affairs as educationist, alderman, and ex-mayor of his borough, he combined a grasp of detail, a remarkable memory, an enviable capacity of sizing up a new problem and of seeing in a flash the implications which it involved. He hoped that as a Member of Parliament we might soon have his services in the House of Commons. He concluded by asking Dr. Brackenbury to accept what was offered as an expression of gratitude and goodwill.

Dr. Dain then handed to Dr. Brackenbury a cheque for £6500 and a handsome canteen of silver inscribed "To Dr. Brackenbury as a mark of the respect and esteem in which he is held by fellow members of the medical profession."

Dr. Brackenbury said that criticism and opposition were natural to the earlier part of any public man's life, and it was with something of astonishment that he was emerging from the sombre chrysalis stage into one of appreciation and encouragement. With that feeling of astonishment there came to him an overwhelming sense of the extraordinary kindness of it all. It was true that he had spent a good deal of time, and had made financial sacrifices, in trying to help the medical profession on certain lines. But a good many other people had been doing exactly the same thing. To him it had all been very interesting and very enjoyable. He could not recall a happier three-quarters of an hour in his life than when making a certain speech before the Court of Inquiry. There seemed to him to be no reason why one particular individual of a group—a group who had been doing work in common, who had influenced one another and guided one another, and as a group had done far better than any individual could have done by himself—should be chosen for a presentation. He recalled a sentence of Francis Bacon's, "I hold every man a debtor to his profession, from the which as men of course seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amendment to be a help and ornament to their undertaking." It was a maxim which perhaps some of them did not think about as often as they might. For himself, he had never professed to be an ornament, even in the Baconian sense of the word, but he had quite honestly tried to be a help to the profession, and it appeared from what was being done to-night that in some sense and in some degree he had succeeded. "I want to thank you most heartily," Dr. Brackenbury concluded, "for these beautiful things, and for this wallet containing such an embarrassing number of delightful possibilities. But more than that, believe me, I thank you for the sincerity and the kindness and the encouraging appreciation which I am sure have been in your hearts and minds in making this presentation."

Mr. Souttar proposed the thanks of the meeting to Sir Humphry Rolleston, and the rest of the evening was spent in renewing social ties and in anticipation of the Panel Conference on the following day.

RAINFALL AND HEALTH.

A STUDY OF RECENT METEOROLOGICAL DATA.

(BY A SPECIAL CORRESPONDENT.)

IT was as recently as 1921 that we were close to a water-famine of disastrous intensity.[1] In the south-east of England it seemed as if a pall, pervious to sunshine, but impervious to wet, had spread over the land. Rain-bearing winds favoured the north and west. Even experts took it for granted that the rainfall could not fall below 60 per cent. of the average, and yet in not a few places the rainfall, to use an Americanism, was cut in half. Truly, 1921 was a remarkable year. Yuccas flowered as if England were their real home. Time-worn expressions such as "weather permitting" lost their significance. Rivers, ponds, and ditches dried up, flowers languished and died, fields looked like patches of desert, children's playgrounds blew away in dust. Clouds came and went, the barometer rose and fell, winds seemingly favourable for rain proved fickle, the law of averages flouted the pundits. The happy army of outdoor-lovers came into their kingdom, and fortunately, those who prophesied disease were confounded—we are speaking here in general terms without necessarily disputing the judgment of those who contend that the drought was responsible for local troubles. There were, however, graver aspects: agricultural and horticultural losses and perils to men and beasts. As regards water-supply, the Ministry of Health showed itself alive to the potential danger of the situation, and at an early stage formed what might be described as an unofficial expert committee, composed largely of non-Ministry officials who placed their services unreservedly at the disposal of the health service.

The Book of Normals.

The recent summer has blotted out the memory of fine weather and adds gusto to a study of a fascinating pamphlet[2] recently issued by the Meteorological Office, which gives the monthly normals of rainfall (1881-1915) for nearly 600 stations, along with the height above sea-level and the latitude and longitude. At the end of the report there is an alphabetical index with page references, which will enable the prospective holiday-maker to plan a 1925 holiday in areas which are relatively dry without being low-lying or swept by bitter winds. Seathwaite (at an elevation of 422 feet) has an annual rainfall of 129·48 inches in startling contrast to Shoeburyness (elevation 13 feet) with 18·87 inches. Regarding London the index is dumb, but the information sought will be found under Camden-square (24·47 inches), Greenwich (23·50 inches), and so forth. Many people think, not without reason, that mountains mean heavy rainfall. In the whole of Scotland there are few spots so beautiful as Glenquoich (elevation 569 feet) with a rainfall of 110·75 inches. Yet at Grantown-on-Spey (elevation 700 feet) rainfall is nearly four times less (31·15 inches), although the elevation is greater and the scenery at least as beautiful.

Wet and Dry Months.

Table I. is interesting as showing the general rainfall averages (in inches) month by month computed from isohyetal maps, from which emerge the following facts:—

Taking the British Isles as criterion figure (41·41), England (32·67) stands easily first in point of dryness, and Scotland (50·32) and Wales (50·14) are about equally bad from a wet point of view. April is pre-eminently the driest month, and October or December the wettest. Speaking of the British Isles as a whole, January, February, and March (10·26), and July, August, and September (10·22) might be described as average months, October, November, and December (13·16) as wet, and April, May, and June (7·77) as dry months.

TABLE I.—*General Rainfall Averages in Inches.*

—	Worst month.	Best month.	Year.
England	October, 3·69	April, 1·98	32·67
Wales	December, 6·00	May, 2·95	50·14
Scotland	December, 5·88	June, 2·83	50·32
Ireland	December, 4·96	April, May, } 2·75	43·30
Isle of Man	December, 4·97	April, 2·47	42·30
England and Wales ..	October, 3·97	April, 2·12	35·23
British Isles	December, 4·72	April, 2·52	41·41

The London Balance-Sheet.

Table II. shows for London (Camden-square) the normal rainfall and the rainfall for the calendar years, 1921, 1922, 1923, and the first nine months of the present year.

TABLE II.—*Rainfall in Inches, Camden-square, London.*

Month.	1881–1915	1921	1922	1923	1924
January ..	1·86	2·48	2·81	1·28	2·75
February ..	1·67	0·18	2·20	3·04	0·65
March	1·83	1·19	1·51	2·39	0·73
April	1·54	1·29	3·02	1·37	3·14
May	1·76	1·03	0·83	2·28	3·14
June	2·02	0·37	1·12	0·42	2·47
July	2·38	0·13	3·85	3·24	5·69
August . ..	2·21	1·65	2·54	2·01	2·72
September ..	1·82	2·50	2·13	1·29	2·59
October. ..	2·63	0·63	1·02	5·94	—
November ..	2·36	2·01	1·43	1·46	—
December ..	2·39	1·13	3·14	2·31	—
Year	24·47	14·59	25·60	27·03	23·88 for 9 months.

At the end of 1921 the deficiency in the rainfall was 9·88 inches. The rainfall for 1922 was 25·60, an excess only of 1·13, reducing the 1921 deficiency to 8·75 inches. In 1923 the rainfall was 27·03, an excess of 2·56, bringing the 1922 deficiency to 6·19 inches. The 1924 rainfall is 23·88 for the first nine months, and if we assume *normal* rainfall for the last three it will amount to 31·26, an excess of 6·79 inches which would wipe out the deficiency and leave 0·60 inch to the good. For the 24 hours ended 9 A.M. Oct. 1st, 1924, 0·44 inch of rain fell, but this is included in the September total. Up to 9 A.M. Oct. 9th, an additional 1·05 inches have fallen (Camden-square). In many parts of the country, however, much heavier falls have been recorded.

Notable Records.

Not much can be said against 1922, or even 1923, as regards the rainfall, but certainly the last six months of 1924 have been depressing. During these months, when genial sunshine and fine weather are generally expected, the rainfall has amounted to 19·75 instead of a normal of 11·73 inches. A number of incidents of meteorological importance have occurred during the years under consideration. In January, 1910, Paris suffered from serious and alarming floods. At the close of 1923 and the beginning of 1924 a similar visitation was experienced, and for a time the position was fraught with grave anxiety. April, 1924, was a most inclement month, excepting the Easter week-end, which was gloriously fine. On May 1st London was bathed in a fog and the Rivers Thames and Lee were in flood. July hit Hampstead very hard. 7·6 inches of rain fell during the month, the largest recorded fall in any month since observations began there in 1858. There was a terrific thunderstorm in the London area on July 22nd, and at the climax of the storm at Hampstead 0·36 inch fell in two and a half minutes. The rainfall at Cannington, near Bridgwater, Somerset, for the 24 hours ended 9 A.M.

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[1] THE LANCET, 1922, i., 148.

[2] Air Ministry. The Book of Normals of Meteorological Elements for the British Isles for Periods ending 1915. Section V.: Monthly Normals of Rainfall. H.M. Stationery Office. 1924. Price 4s.

on August 19th, was 9·04 inches, a record which has only once been surpassed (9·56 inches at Bruton, Somerset, on June 28th, 1917). Other phenomenal falls of rain within 24 hours have been 8·20 inches on Oct. 11th, 1916, at Loch Quoich (Inverness), and 8·03 inches on Nov. 12th, 1897, at Seathwaite (Cumberland). On July 9–10th, 1923, a terrific thunderstorm broke over London. In six hours there were 6924 flashes of lightning, an average of 19 per minute, and 2·10 inches of rain fell at Camden-square. In 1914 a waterspout produced the most disastrous results near Carr Bridge (Inverness), and on July 8th, 1923, the same locality suffered again in much the same way.

Weather Psychology.

There can be no question of the influence of weather on health. There are the now familiar object-lessons of Alton and Hayling Island, and the rays of the sun are being used more and more each year to ameliorate pathological conditions and to prevent the occurrence of disease. The effect of exposure to strong prevalent rain-bearing winds on early cases of phthisis has again been emphasised recently.[3] At the same time, we must preserve a sense of proportion, and remember that one of the charms of our climate is its variability. Ever since the glorious year of 1921, the man in the street is convinced that the weather has been disastrously wet. It may be that the psychology of the nation has been changed as a result of the war. The late Sir William Osler, among his many charming attributes, refused to allow the weather to ruffle his feelings. He saw beauties in Nature at all seasons; snow, sleet, and rain were to him but variations of an admirable whole. We think the absence of sunshine, the usual corollary of wet weather, has a depressing and therefore a bad influence on our lives, but where in the past we used to complain of the weather with a latent smile, we complain now with a scowl. Summation of such stimuli may drive us into the hands of the alienist, and that is happening to some of us in regard to the weather. The "grouse" becomes a sort of "hymn of hate" which grows in intensity each time it is sung. Curse the weather a little more vehemently each time and you become a "weather hog." The sooner we all cultivate the Mark Tapley spirit, the sooner shall we reach the serenity of past years.

THE LONDON MEDICAL EXHIBITION.

A REVIEW OF THE EXHIBITS.

(Concluded from p. 781.)

The London Medical Exhibition closed after a successful session on Friday, Oct. 10th. In a previous issue we dealt with the large display of Drugs and Foods *; this week we notice the principal Surgical Apparatus and Instruments, Milk and its Preparations, Spas and Waters, Medical Books, and other things of medical interest which do not fit in to any general classification.

Surgical Apparatus and Instruments.

On entering the upper hall of the exhibition one of the first objects to attract attention was the "Westminster-Eidinow" Sun Ray Arc Lamp for Actino-Therapy which is equally efficient on alternating or direct current (Agents: Allen and Hanburys Ltd.). It has a powerful long flame rich in ultra-violet rays, the proportion of which can be increased or lessened by the use of varying electrodes. The National Institute for Medical Research recently called attention to the value of arc-light baths (The Lancet, 1924, i., 1290), and we understand that the lamp has been ordered by 16 large hospitals or sanatoriums.—X Rays, Ltd., incorporating F. R. Butt and Co. (11, Torrington-place, Gower-street, W.C.), attracted a large number of visitors by reason of their display of apparatus of practical utility, all of which were of British manufacture. Chief place must be given to an ingenious tube stand specially designed to carry the additional weight of protection called for in the latest N.P.L. specification, without sacrificing any of the advantages of lighter tube stands. It allows of all necessary movements above and below the couch, and the detachable end box can be rotated in any direction by means of easy-working universal joints. Another piece of apparatus of merit was the new model combined couch and screening stand, while the thermotank—practically an electrically-heated water-bath—for developing films at a constant temperature evoked much commendation.—The General Radiological and Surgical Apparatus Co., Ltd., incorporating M. Schaerer, S.A. (204–206, Great Portland-street, W.), in addition to high-pressure sterilisers, baby incubators, hospital furniture, and surgical instruments showed the Dental Heliodor, a complete self-contained X ray unit, the Neo-Thermoflux, a diathermy apparatus embodying the latest improvements, and the original Hanau Quartz (ultra-violet) and radiant heat lamps.—The exhibit of films by Kodak, Ltd. (Kingsway, W.C.), also attracted much attention. On the wall were displayed some beautiful 14 × 17 negatives and enlarged dental prints of quarter-plate size. The improvement in the "Dupli-Tized" X ray film negative due to the use of the Potter-Bucky diaphragm was clearly shown, and the large number of photographic X ray accessories made this exhibit a most interesting one.

The stall of Down Bros., Ltd. (21 and 23, St. Thomas's-street, S.E.), afforded an opportunity to the medical practitioner to select those instruments or appliances which might be particularly adapted to his or her requirements, for here, among a general collection of surgical apparatus, were many new instruments recently introduced, and modifications of existing patterns carried out at the suggestion of surgeons. Many of this firm's instruments are made in stainless steel. Notable features of this exhibit were the "Up-to-Date" Operation Table with oil pressure pump for raising and lowering and with other controls which can be easily operated by the anæsthetist; and a portable apparatus for tracheal insufflation anæsthesia. —Mayer and Phelps ("Chiron House," 59–61, New Cavendish-street, W. 1). Here also a good selection of instruments could be made, including the "Chiron" Dissecting Forceps, designed to give delicacy of control and not to tire the surgeon's hand, the Gillies' Suture Forceps and Scissors combined, and a new syringe for local anæsthesia. Though only shown by a photograph particular attention was drawn to the "Empire Operation Table."[1]—The Surgical Manufacturing Co., Ltd. (83 and 85, Mortimer-street, W.), in addition to the "Barton" Sphygmomanometer, of which they made a special feature, exhibited a large assortment of surgical instruments and hospital and consulting-room appliances. The "Barton" electric Auroscope and the "Servic" high-pressure Steriliser were examined with great interest by many visitors.—Many ingenious contrivances were shown by the "Aurorascope Co.," Ltd. (18–19, Fulwood House, Fulwood-place, High Holborn, W.C.), for use by the aural or ophthalmic surgeon and by the general practitioner. Much interest was shown in the Standard Morton Ophthalmoscope convertible and re-convertible at will into the electric Fundus Aurorascope and in the Pocket Urinary Outfit containing reagents with which anyone can test at the bedside in a few minutes.—Surgical dressings, ligatures, and dental requisites were shown by Fassett and Johnson (Seabury and Johnson Preparations, 86, Clerkenwell-road, E.C.), particularly noticeable being "Meads" Rubber Adhesive Plaster, "Gold Cross" Absorbent Cotton, Wintergreen Plasters, and a boil plaster of red lead, camphor, and olive oil on a base of boric lint.—Various appliances for defects of the feet were exhibited by the Scholl Manufacturing Co., Ltd. (1–4, Giltspur-street, E.C. 1), and H. E. Curtis and Son, Ltd. (7, Mandeville-place, W.), had an excellent selection of abdominal supports and belts, trusses, elastic hosiery, and so forth. Colonial Liquid Paraffin of extra high viscosity for use as an intestinal lubricant was also shown by this firm in tasteless and flavoured forms.—Domen Belts Co., Ltd. (456, Strand, Charing Cross, W.C.), showed a large selection of belts based on physiological and anatomical considerations for use in pregnancy, accouchement, umbilical hernia, and floating kidney. Particularly noticeable was a hypogastric and gastroptosis belt for employment in cases of extreme corpulency and of pendulous abdomen. By the use of a peculiarly constructed flexible steel spring with a well-cushioned pad an equitable and gentle pressure is maintained immediately above the pubes.—A big display of microscopes for biological, histological, and research purposes, as well as for microphotography, attracted a constant crowd of visitors at the stand of Chas. Hearson and Co. (68,

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[3] W. Gordon, M.D.: Wet Winds and Early Phthisis, The Medical Officer, 1924, xxxi., 158.

* In this report Saccharomycin, a well-known product of the British Organotherapy Co., Ltd., was inadvertently attributed to Messrs. Allen and Hanburys, Ltd.

[1] The Lancet, 1924, ii., 51.

Willow-walk, Bermondsey, S.E.), where there was a fine collection of biological and other apparatus used in research work. In particular, good pattern microtomes, freezing and recording apparatus were exhibited. The frequent microscopical demonstrations were much appreciated. A new and extensive catalogue of the physiological, pathological, botanical, and similar apparatus made by this firm is in the press.—"Tycos" Sphygmomanometers, portable and surgical types, were shown by SHORT AND MASON, LTD. (Aneroid Works, Walthamstow, E.), one of their chief features being that there is no glass tube to break. The surgery type has a 6-inch dial and the size enables more accurate observations than are possible with a smaller type. It is designed to be used on the table or fastened to the wall.—The display of clinical thermometers by G. H. ZEAL, LTD. (75–77, St. John-street, E.C., and 29, St. John's-lane, E.C.), attracted attention by reason of some ingenious contrivances for resetting the instruments. The "Repello" is an ordinary clinical thermometer with a flattened bulb of flexible glass, this on being pressed between the finger and thumb forces a column of quicksilver down the bore, which on coming in contact with the buffer of gas between the two columns forces the registering column back below the divisions. The "Acello" is a pocket thermometer in which the centrifugal principle is used to reset the instrument.

Among appliances for the deaf particular interest was shown in the stand of GENERAL ACOUSTIC CO. (Acousticon House, 18, Hanover-street, W.), where there were shown electrical and non-electrical aids for the deaf in large variety. One of the latest introductions of this firm is a microphone made in tortoise-shell, weighing 1½ oz. only, which can be worn under the tie or within a lady's dress without inconvenience. The receiver is equally light. A form suitable for medical men, in which the telephone earpiece with a push button for conveniently and quickly turning the current on and off, can be carried in the waistcoat pocket and instantly attached to a very light head band when required for use. Other notable exhibits were a wireless box 'phone for the deaf, acousticons concealed in dainty vanity bags for ladies' use, church sets consisting of a microphone for use near to the preacher while the receiving apparatus is distributed among the deaf in the congregation, and a judge's acousticon for use on the bench.—At the stand of the DEAF APPLIANCE CO., LTD. (58–60, Wigmore-street, W. 1), many electrical and non-electrical instruments for the deaf were shown, among which was the Micromega, a small receiver which fits easily into the ear and does not require to be held. This instrument is recommended in suitable cases for nerve deafness or slight middle-ear deafness. The Earlux is made in different types for portable or table use.—At the stand of "ARDENTE ACOUSTIQUE" (95, Wigmore-street, W.), who make some 30 different types of their apparatus to relieve definite and specific conditions of deafness, attention was drawn to the "Ardenta Acoustique" Stethoscope specially designed for doctors suffering from deafness, and the "Ardente Acoustique" church installation which makes it possible for deaf people to join in the service from any part of the building.

Much interest was shown in the British Benedict Metabolism Apparatus, HERBERT E. KENDRICK (3, Morley-avenue, Highams Park, E.), an apparatus designed to meet the needs of physicians who require a portable outfit for use in hospital, consulting-room, or patient's home. The basal metabolic rate is determined at the bedside by measuring the amount of oxygen consumed during a known period. Comparison with a chart showing average normal consumptions, followed by a simple calculation, gives the plus or minus metabolic rate. Results are obtained without analysis, and no breathing bag, meter, or electric current is required. The instrument can also be used as a vital capacity spirometer, or for the administration of medicinal oxygen.

Milk and Milk Foods.

The stands exhibiting milk and milk foods included GLAXO (56, Osnaburgh-street, N.W.), whose interesting display of their products—Glaxo Standardised Full Cream, Three-Quarter and Half Dried Milk, Prescription Glaxo (Humanised), Glax-Ovo,[2] and Ostelin—were a centre of inquiry. Ostelin is a new product consisting of an anti-rachitic extract of cod-liver oil diluted with glycerine so that three drops of the glycerine suspension are equivalent to a teaspoonful of cod-liver oil.—HORLICK'S MALTED MILK CO. (Slough, Bucks) showed their well-known preparations the vitamin content of which was pointed out to visitors. The various preparations of this company form easily digested and highly nutritious diet for invalids, convalescents, and infants.—The WEST SURREY CENTRAL DAIRY CO., LTD. (Cow and Gate House, Guildford, Surrey), demonstrated their methods of preparing dried milk. The raw milk is supplied by prize Dorset and Somerset herds.—TRUFOOD, LTD. (The Creameries, Wrenbury, Cheshire, and Lever House, Blackfriars, E.C.), showed Humanised Trufood, Trufood Full Cream, and Secway (Sweet Whey Powder); while at the stand of THEW, HOOKER AND GILBEY, LTD. (Buckingham), Hooker's Malted Milk, a food beverage prepared from pure fresh cream milk combined with extractives of selected cereals was exhibited. The analysis shows moisture, 1·50 per cent.; mineral salts, 3·50 per cent.; maltose and lactose, 55·80 per cent.; dextrine, 16·00 per cent.; protein, 14·00 per cent.; and fat, 9·20 per cent.

Spas and Waters.

BATH, famous from Roman times to the present day, which, if for that reason alone, can claim to be the premier spa of the Empire, was well represented by an attractive exhibit of books and pictures. The latest addition to this bathing establishment is a Zander institute for medico-mechanical treatment.—BUXTON, with its chalybeate waters, is another place known to the Romans, where in Tudor times Mary Queen of Scots, suffering from rheumatism, visited for relief. This watering place was also well represented by descriptive literature and pictures.—DROITWICH, England's brine baths spa, drew attention to its facilities for treating rheumatism, gout, neuritis, and certain forms of heart and nervous disorders, among other ailments.—At HARROGATE two new departments have been installed, one for nose and throat treatment, and the other for the mountain sun treatment, with the mercury vapour lamp. A pamphlet giving a summary of the Harrogate waters and treatment has been compiled by the Harrogate Medical Society and can be obtained from the Corporation Wells and Baths Department. Similar literature, it may be mentioned, can be obtained from the other English spas mentioned, as well as from TORQUAY, described as England's premier marine spa, where special treatments are Torbay seaweed baths, Dartmoor peat baths and packs, and Pistany radio-active mud baths and pack, while there are other treatments numbering nearly 40.

The attractive exhibit of INGRAM AND ROYLE, LTD. (Bangor Wharf, 45, Belvedere-road, S.E.), abundantly proved that the scarcity of Carlsbad water, the result of war conditions, no longer exists in this country. Its Czecho-Slovakian origin is emphasised by the labels on the bottles. Bottled waters in great variety were shown by this firm, who are exporters of natural mineral waters, salts, and pastilles. The French natural mineral water Vichy Célestins had a prominent place in the exhibit.

Medical Books.

Medical books were shown by BAILLIÈRE, TINDALL AND COX (Henrietta-street, Covent Garden, London, W.C.); WILLIAM HEINEMANN (MEDICAL BOOKS), LTD. (20, Bedford-street, London, W.C.), who also exhibited specimen tubes of pure glycerinated calf lymph; H. K. LEWIS AND CO. (140, Gower-street, London, W.C.); and by STANLEY PHILLIPS, (48, Brondesbury-road, London, N.W.).

Miscellaneous.

CADBURY BROS., LTD. (Cocoa and Chocolate Manufacturers, Bournville, Birmingham), exhibited their specialty and showed an interesting collection of the raw material in its different forms.—The JAEGER CO., LTD. (95, Milton-street, E.C.), demonstrated the health-conducing properties of their pure wool fabric, and called attention to a specially woven double material holding a layer of air between its inner surfaces.—The exhibit of the GAS LIGHT AND COKE CO. (Horseferry-road, Westminster, S.W.) demonstrated economical and effective solutions of the smoke problem.

CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY.—The centenary year of this society is being celebrated under good auspices, for the report, which was presented at the hundredth annual general meeting on Oct. 10th at the society's offices, 15, St. James's-square, London, S.W., was satisfactory both in regard to business and financial progress during the year which ended June 30th, 1924. The new assurances numbered 1518 for the total sum of £1,617,691, and the net new life business was £1,324,691, as compared with £1,210,064 in the previous year. The total premium income showed the large increase of £41,184, and reached £609,492. The net rate of interest earned after deduction of income tax was £4 13*s.* 2*d.* per cent. The claims by death amounted to £348,737. As the result of the year's transactions the Life Assurance Fund showed an increase of £467,267, and now amounts to £7,961,035.

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[2] Glax-Ovo, THE LANCET, 1924, ii., 662.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Meat Poisoning in Germany.

THE Health Office has published a report dealing with meat poisoning in Germany during the year 1923. According to the report 61 epidemics of meat poisoning occurred with a total of 3090 cases, of which 20 were fatal. In 59 per cent. poisoning followed upon the consumption of minced meat, and in 4 cases frozen meat had been consumed. Bacteriological investigation revealed paratyphus bacilli in 29 cases, *Bacillus enteritidis* Gaertner in two, *Bacillus enteritidis* Breslau in one, *Bacillus botulinus* in two, *Bacterium proteus* in three, *Bacterium coli* in two, and putrefactive bacilli in three. In three instances no micro-organisms could be detected, and in the remainder no bacteriological investigation was carried out. The month of August had a record of 14 epidemics, the remaining 47 being spread over the other months.

The Journal of the German Medical Women's Association.

The German medical women have formed an association of their own. This association has begun to publish a new quarterly journal as its official organ, under the editorship of Dr. Heusler-Edenhuizen and of Dr. Laura Turnau, who had both represented Germany at the recent International Congress of Medical Women in London. The aims of the association are described in the first number as follows: To promote the union of the medical women of Germany, to discuss questions of social hygiene from the standpoint of the medical women, to care for invalid medical women who are unable to work, and to give advice to younger medical women and women medical students. The association will be a branch of the International Medical Women's Association. The first issue contains an introductory letter of Dr. Francisca Tiburtius, the oldest medical woman in Germany, and Prof. Lydia Rabinowitsch-Kempner contributes an article on the work of the medical women in the fight against tuberculosis.

Sixth Congress of the German Society for Urology.

This Congress was held in Berlin from Oct. 1st to 4th, and was opened by Prof. Karl Posner (Berlin), who read a paper on the medico-social significance of urology. It was, he suggested, preferable to consider many of the symptoms arising from disease of the urogenital system as indications of some constitutional weakness—such symptoms, for example, as enuresis, bladder weakness in women, and albuminuria. The results obtained by Rosenstein by means of pneumo-cystography were worthy of particular note. In this procedure the pre-vesical space and then the bladder itself was filled with oxygen. This procedure was indicated where there were strictures in the urethra, and was useful in showing up tumours in the region of the bladder. Dr. Blum (Vienna) gave a report of clinical observations of normal and pathological ureters. Reflux of urine from the bladder into the ureter occurred in three types of condition: (1) where the urinary apparatus was normal and there was a strong pressure in the bladder as occurred in hypertrophy of the prostate; (2) in diseased conditions of the openings of the ureter—e.g., wounds from ureteral calculi and in spinal affection, such as tabes; and (3) where there was anti-peristalsis in the ureter caused by mechanical or thermal stimuli. An explanation was thus offered for many cases of ascending infection. Reflux of urine also occurred where there was a certain rigidity of the ureter, and, further, where one kidney was damaged so that the urine from the other kidney ascended the ureter of the damaged kidney and caused infection. Added to these was the condition of congenital permanent reflux in the ureter known as "megalo-ureter." Prof. B. Bloch (Zürich) considered that palpation of the ureter per vaginam was an important diagnostic aid. If only one ureter could be palpated it could be regarded as pathological, especially if tuberculosis were suspected. According to Stöckel, every palpable ureter was a pathological one. Prof. H. Kümmel (Hamburg) spoke of the surgical treatment of nephritis. He said that the operation of decapsulation had only slowly come into its own, and its successes were on the increase. This operation was first performed (through a mistaken diagnosis) by Harrison, who was later followed by Israel in Berlin, Rovsing in Copenhagen, and Edebohl in the United States. He said that it was not likely that a new collateral circulation was established when the kidney was decapsulated. The action of the nervous system on the decapsulated kidney was important. A great number of sympathetic twigs were found connected with the renal artery. His own experience with the section of the sympathetic nerves of the organ, which had lately been attempted, showed that a considerably improved blood-supply of the kidney was obtained. Indications for surgical interference were (1) nephritis after acute infectious disease, of vital importance if anuria were present; (2) toxic nephritis, including eclampsia; and (3) acute infectious nephritis in its various degrees. Renal calculi often gave the indication for decapsulation. Prof. F. Volhart (Halle) opposed the views of Prof. Kümmel, and questioned whether surgical interference in nephritis was justifiable.

Infectious Diseases.

Infectious diseases have shown a considerable decrease in 1923. Diphtheria has decreased by 6000 and scarlet fever by 5000 cases, puerperal fever from 6422 to 5592, trachoma from 1522 to 1192, trichinosis from 110 to 25 cases. On the other hand, typhoid fever has increased from 10,992 to 13,162 cases, and hydrophobia from 52 to 65 cases. Encephalitis lethargica was notified in 271 cases, this being the first time that the notification of this disease was compulsory. As to small-pox, a report of the Health Office of the period from 1919 to 1921 states that 5021 cases of the disease occurred in 1919, an extremely large figure compared with the former state of things; in 1920 and 1921 the number fell again to 2115 and 689 cases respectively. The case-mortality fluctuated between 14·1 and 16·7 per cent. The cause of the great number of cases in 1919 was that during the revolutionary troubles of that year many unvaccinated foreigners from abroad entered Germany without permission, and that the control of vaccination had been much relaxed. The mortality among the unvaccinated or people vaccinated a long time ago has been greater than among the recently vaccinated.

The German Red Cross.

The German Red Cross, which was formerly to a great extent an auxiliary force of the Army Medical Corps, has now entered on a new sphere of activity. It assists the Government in the care of invalids, in the prophylaxis and treatment of epidemics, and in the care for the general health. For that purpose it continues to train nurses, professional as well as voluntary (the latter doing service only in cases of epidemics and urgent occasions), male attendants, laboratory assistants, and disinfectors. It also maintains depots of sanitary appliances and of dressing materials, and arranges for popular lectures on hygiene. 390 hospitals and convalescent homes and 500 creches are connected with the Red Cross or managed directly by its local branches. 12,000 parish nurses work in 1294 parishes among the indigent classes. The women's organisation of the Red Cross has 2000 branches with 800,000 members. The badge of the Red Cross is, according to the law, a privilege of the Red Cross Association. Only societies belonging to or connected with that organisation may use the badge. The badge was formerly granted by the war office, but now that under the Versailles treaty the Red Cross is independent of the Army Medical Department, it is awarded by the Ministry for Home Affairs.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the statistics of four counties and three combined county areas for 1923 :—

Name of area.	Estimated (R.G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Hertfordshire.	337,800	17·2	9·6	0·7	1·4	1·6	25	42	2·9
Cumberland ..	219,720	21·1	12·7	1·0	1·2	1·9	34	74	5·6
Cambridgeshire (excluding B. of Cambridge)	70,640	17·4	12.2	0·8	1·5	1·6	33	56	7·3
Fife	109,645	21·5	11·3	0·7	1·0	1·4	38	76	6·6
Herefordshire Comb. D. ..	50,543	20·2	12·7	0·9	1·4	1·6	35	60	6·0
W. Gloucestershire Comb. D.	48,443	19·7	10·6	0·8	0·9	1·5	31	44	5·2
S. W. Kent United Health Area	79,858	18·0	11·6	0·8	—	—	—	44	5·6

Hertfordshire.

Dr. H. Hyslop Thomson states that in more than 30 per cent. of the cases of pulmonary tuberculosis visited the patient occupied a bedroom with two or more other persons. This, he says, indicates the existence of overcrowding and the urgent need for additional houses. The County Council have prepared a scheme for promoting the welfare of blind persons which came into operation on April 1st, 1923, and is in addition to the provisions made by the education authority. In carrying out the scheme, the County Council have secured the coöperation of the County Nursing Association and the Hertfordshire Association for the Blind. The register of blind persons in the county contained at the end of the year 304 names, 137 being males and 167 females. The work of ascertaining and dealing with mental defectives has been continued during the year. Ninety-eight mental defectives were reported to the medical officer, 54 being males and 44 females. Of the 98 cases, 9 were defective and epileptic, 4 were epileptic, and 22 either dull and backward or suffering from some form of physical defect associated with backwardness. The absence of adequate accommodation in certified institutions, more especially for low-grade and complicated cases, is seriously felt from time to time. In the maternity and child welfare work the voluntary centres are linked up to the Council scheme with excellent results. There is a decided increase in the number of children and mothers who have had dental treatment. Ten nurse-midwives were trained at the Watford Training Home during 1923, and the County Council grant of £500 has been given to the County Nursing Association. 2685 confinements were attended by midwives alone. There are 147 midwives practising in the county, 142 trained and 5 untrained. The midwives paid 10,680 antenatal visits, and six maternal deaths occurred among their cases. Dr. Thomson reports that the regulations suggested by the Ministry of Health have lessened the nuisance caused by the dumping of outside refuse in the county. A further improvement has resulted from the action of the Ministry in securing the covering of railway wagons which convey rubbish into the county. Improved arrangements for the removal of refuse in the county itself are needed.

Cumberland.

Dr. F. H. Morison reports that there is great difficulty in getting patients to accept sanatorium treatment for tuberculosis at a time when the treatment would be most hopeful. The supply of milk to expectant and nursing mothers and young children has had to be continued on a fairly large scale owing to unemployment in the west of the county. Dr. Morison draws attention to the wide powers granted by the Maternity and Child Welfare Act of 1918, and expresses his regret that neither the medical nor the nursing staff is adequate to carry out anything like a complete scheme. Dr. Mark S. Fraser submits the report of the Englethwaite Industrial Colony, in which he points out that industries are necessary in the treatment of pulmonary tuberculosis, that they are more valuable as part of the treatment than as a preparation for new occupations, and that only under exceptional circumstances can they be self-supporting. Nevertheless, the after-care report shows that of 34 men who are working and earning a living, 15 are working at trades learned in the colony, 6 at their former employment, and 13 at other occupations.

Cambridgeshire.

Dr. Frank Robinson states that there are now only three untrained registered midwives practising in the county as compared with 44 when the Midwives Act of 1902 first came into operation. Through the County Nursing Association the area of the county unserved by nurses is gradually being reduced. Since the war ten new associations have been assisted to start work in 20 rural parishes. The proportion of midwives' confinement cases in which medical aid has been summoned has increased from 5·2 in 1919 and 7·1 in 1922, to 9·1 in 1923. The visiting of expectant and nursing mothers and children under school age by the staff of the nursing associations shows a considerable increase. This work is important in rural areas where a welfare centre is not a practical proposition. The visits to expectant mothers have been useful in securing special medical assistance when necessary at Addenbrooke's Hospital, and also in securing dental treatment. The County Council have no maternity and child welfare centres under their direct management, but make grants in aid to centres carried on by voluntary agencies in rural parishes. Home helps provided by the County Nursing Association are also subsidised, but there is difficulty in getting suitable women to undertake this work. Six additional open-air shelters with bedding outfit have been purchased, bringing the total provision up to 135. Since the receipt of the Ministry's circular on after-care a provisional sum has been included in the estimates, and it has been decided to confer with the After-care Association as to the best way of complying with the suggestions of the Ministry. Most of the male consumptives who receive institutional treatment are provided for at Papworth. Dr. Robinson compares the economic value of providing treatment for lung consumptives and bone and joint cases respectively, and emphasises the loss to the community caused by permanent crippling in the latter cases. The report on the Sale of Food and Drugs Acts reveals the usual inadequate penalties for adulterating milk. In two cases where there was 10 per cent. of added water, the penalties were 10*s.* with 15*s.* costs and £1 with 10*s.* 6*d.* costs respectively. The annual reports of the district medical officers of health refer to the impossibility of dealing with houses which are overcrowded or unfit for habitation. In the Newmarket rural district cottages with three bedrooms are badly wanted. The Chesterton council are endeavouring by means of the subsidy and the proceeds of a penny rate to build cottages to be let at a rent that the labourers can pay, but are finding it a difficult task. Comparing the Census results of 1911 and 1921, all the districts in the administrative county, with the exception of the borough of Cambridge and the rural district of Chesterton, show a decreased population.

County of Fife.

Dr. G. Pratt Yule's report deals with the conditions of the districts Cupar, Dunfermline, Kirkcaldy, and St. Andrews, which make up the landward area of the county. The regulations for the notification of chicken-pox terminated at the close of the year. During the last two years the cost of drugs prescribed for the treatment of tuberculosis has been defrayed by the county. The number of prescriptions issued by a small minority of practitioners (about 1 in 10) suggests to Dr. Yule that prescribing with them is a routine habit intended as a placebo for the patient. The tuberculosis officer, Dr. G. M. McGillivray, emphasises the value of the health visitors in improving the environment of the consumptives. He also states that there is a tendency to notify cases at an earlier stage, and that quite a large number of practitioners now notify "suspects." The improvement in home conditions after return from a sanatorium is evidence of the great value of the sanatorium as an educator. Dr. W. P. S. Johnson, the V.D. medical officer, shows that the dispensary opened in Dunfermline in November, 1922, has been very successful in attracting patients both male and female and in securing their continued attendance. During the year only 10·2 per cent. of the cases ceased to attend before completing their course of treatment, and Dr. Johnson thinks this favourable result is due to the method adopted of scrutinising the case cards monthly and writing under confidential cover to the defaulters. Every endeavour is made to treat the source of infection in the case of congenital disease, and in some such cases whole families have been examined. Towards the end of the year a number of boroughs were invited to grant facilities for lectures to men and to women on the evils of venereal diseases, but the majority appeared to be averse to such teaching. Under maternity and child welfare work, Dr. Yule says there are eight nurses working whole-time in the capacity of health visitor, tuberculosis nurse, and assistant inspector of midwives within the districts Dunfermline, Kirkcaldy, and St. Andrews and the ten boroughs therein, but that this service does not exist in the Cupar district. There are no centres, and Dr. Yule thinks that centres have unsatisfactory features apart from the fact that they do not attract the mothers whom it is most desirable to reach. Two midwives were reported to the Board; one of them was put on probation, the other was the only midwife in a wide and sparsely populated district, and in these circumstances no action was taken. The facts of two cases where unqualified women were in attendance at confinements were reported to the Procurator-Fiscal, who held that the provisions of the Act on emergencies covered one case, and the words "under the direction of a registered medical practitioner" the other, so no action was taken. No application has yet been received to sell a designated milk within the county area. Dr. Yule does not think it is feasible to enforce the meat inspection regulations of 1923 in scattered county districts with private slaughter-houses situated frequently many miles apart.

Herefordshire.

Dr. Herbert Jones points out that it is a constant practice to complete the building of a cottage before ascertaining whether there is any suitable water-supply available. About one-fourth of the cottage houses are supplied from distant sources, and the task of achieving a proper standard of cleanliness is thus made difficult. No site, he says, should be considered suitable for building if there is not a supply of water on it. There is much negligence in all parts of the district with regard to the protection of dip wells. As a rule there is no difficulty in making these wells safe by enclosing them and providing an outlet by a pipe to slightly lower ground. The slop-drains from far too many cottages discharge into the nearest roadside ditch, and even in the case of newly erected houses this practice has been permitted. Dr. Jones has no sympathy with occupiers who complain that their pail closets are offensive or a nuisance. The remedy is in their own hands, as pail closets can be readily used as earth closets. There were 27 new houses erected during the year. In many parishes more houses are required. The regular inspection of houses has been in abeyance owing to the high cost of repairs. Dr. Jones thinks it should now be resumed. The rural housing problem is not an easy one to solve. Dr. Jones thinks the State might give assistance by providing expert engineering advice for the provision of rural water-supplies and sewage disposal works. He believes that a great deal can be done to reduce cost by mass production and scientific organisation. Subsidies or grants from the State, he says, will never reduce the cost of building; on the contrary, they have always sent it up. From 10,000 to 12,000 men, women, and children come into the combined district for about four weeks in August and September as hop-pickers. All sorts of out-buildings are used for their accommodation, though on an increasing number of farms there are specially erected buildings. Bye-laws with respect to the accommodation of hop-pickers have been adopted with great advantage by the Hereford, Leominster, and Weobley districts, but the Bromyard and Ledbury councils have not yet come into line. Dr. Jones reports that in the various districts little attention is given to cleanliness in the matter of milk production.

West Gloucestershire.

Surgeon-Captain O. W. Andrews reports that there was a considerable number of cases of small-pox during 1923. The bulk of the cases were in the East Dean district. Of 188 cases notified, 161 were unvaccinated, 17 had not been vaccinated since infancy, 9 were vaccinated after contact, and 1 was said to have been vaccinated while a prisoner of war in Germany. There were no deaths. The mildness of the epidemic led many to think that it was not really small-pox, but Dr. Andrews has no doubt on the subject. The spots were more spherical than those of chicken-pox, and the distribution was quite different. In the cases of small-pox the spots were on the face, back, wrists, forearms, ankles, and legs, and very few on the chest or abdomen. In the chicken-pox cases the trunk was chiefly affected. Experience showed that if vaccination was carried out within the first three days of the incubation period, the symptoms of small-pox seldom developed. In cases vaccinated on and after the fifth day the vaccination was successful, the vaccinia and small-pox ran concurrently, and the severity of the small-pox appeared to be decreased. A considerable amount of vaccination was done in the affected schools, and Dr. Andrews estimates that half the children of school age are now vaccinated and that if to these be added the number of the recent sufferers from the disease some protection against epidemics should be afforded for some years. Forty-seven cases of typhoid and paratyphoid fever were notified. Careful inquiries were made as to possible food sources of the epidemic in which the Ministry of Health and the medical officer of health for the city of Gloucester (Dr. Ronald Berry) took part. No definite conclusion was reached, but the Ministry of Health discovered that in several outbreaks occurring in widely separated districts there was one article of food common to all those who had been attacked—viz., currants. It is suggested that currants are not always carefully washed, and that the protection afforded by the material in which they are embedded prevents them being sterilised during the cooking process.

South-West Kent.

Dr. S. Nicol Galbraith only began his duties on Sept. 1st, 1923, in succession to Dr. J. S. Tew, whose death occurred on Sept. 27th, 1922. Dr. Galbraith reports that the hop-picking season of 1923 passed without any serious outbreak of infectious disease. During this time the population becomes practically doubled, especially in the rural districts of Tonbridge and Maidstone. In Tonbridge rural district the normal population of 17,000 was increased to about 37,000. Before the arrival of the pickers the huts are thoroughly inspected and the water-supply and sanitary accommodation are seen to. The inspectors report that the accommodation for pickers is much improved during recent years. Good use has been made by the farmers of army huts and bell tents. The pickers bring their own sheets, blankets, and domestic utensils, while the farmers provide cooking sheds with benches and fuel. Most of the camps have company's water. Dr. Galbraith found one camp much overcrowded, and the people standing in a queue waiting for water from the one tap, which was situated in a quagmire. In some instances the scavenging and cleansing of the camps could be much improved. It is suggested that the camps might be run more on military lines, and that young farmers with army experience could readily introduce simple methods of camp sanitation and detail a few of the pickers to clean up and keep the camps in order. One farmer complains of the lack of supervision of the food sold by hawkers to pickers. Voluntary nursing and first aid is carried out by charitable organisations in several of the villages and this meets a great need among the pickers. Minor ailments such as scalds and burns are frequent among the children. "Much credit," says Dr. Galbraith, "is due to the doctors in the hop-picking areas on whom a great deal of work is thrown."

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 11TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 55; scarlet fever, 2278; diphtheria, 1115; enteric fever, 150; pneumonia, 673; puerperal fever, 53; cerebro-spinal fever, 3; acute poliomyelitis, 35; acute polio-encephalitis, 3; encephalitis lethargica, 41; continued fever, 40; dysentery, 7; ophthalmia neonatorum, 128. No cases of cholera, plague, or typhus fever were notified during the week. The cases of continued fever were notified from Bethnal Green, the number there given is 10, the larger number mentioned in the total apparently being a misprint.

Deaths.—In the aggregate of great towns, including London, there were 9 deaths from enteric fever, none from small-pox, 10 from scarlet fever, 17 from diphtheria, 11 from measles, 21 from influenza. In London itself the diphtheria deaths numbered only 5, the deaths from infantile diarrhœa 28.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. R. M. Richards is placed on the Retd. List with the rank of Surg. Capt.

D. Duncan to be Surg.

J. G. Holmes to be Surg.-Lt.

ROYAL ARMY MEDICAL COLLEGE.

Capt. J. S. K. Boyd to be Asst. Professor.

ROYAL ARMY MEDICAL CORPS.

Maj. R. L. V. Foster to be Lt.-Col., vice Lt.-Col. E. E Parkes to half pay.

TERRITORIAL FORCE.

Capt. V. Townrow resigns his commn. and retains the rank of Capt.

ROYAL AIR FORCE.

The undermentioned are granted permanent commissions in the ranks stated: Flight Lt. T. McClurkin and Flving Officer C. V. D. Rose.

Flying Officer (hon. Flight Lt.) G. R. Hall is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICE.

Lieut.-Col. J. H. Murray, C.I.E., acting superintendent of the Yeravda Central Prison, has been appointed Acting Inspector-General of Prisons. Major E. E. Doyle, acting superintendent of the Ahmedabad Central Prison, succeeds Col. Murray as Superintendent of the Yeravda Central Prison. Lieut.-Col. G. McPherson, C.I.E., has been granted a further extension of leave for six months. Major A. N. Thomas has been permitted to return to duty.

Capts. R. R. M. Porter, J. R. D. Webb, and A. C. Macrae to be Majs.

Monawar Khan Afridi to be temp. Lt.

Capts. Narendra Nath Ray (who retains the ranks of Capt.) and Gokal Chand Batra relinquish their temporary commissions.

The King has given to Lt.-Col. B. Biggar, R.A.M.C., His Majesty's Royal licence and authority to wear the Insignia of the Third Class of the Order of the Nile, which has been conferred upon him by the King of Egypt in recognition of valuable services rendered while employed with the Egyptian Army.

DEATHS IN THE SERVICES.

Surgeon-General Richard Henry Quill, C.B., A.M.S. (retd.), who died on Oct. 18th at Cheltenham at the age of 76, entered the army as assistant surgeon in 1872. He served in Afghanistan in 1879–80, and afterwards became senior medical officer of the Thames District. He later held a similar post in the Ceylon Command, and was then appointed to the administrative medical charge and P.M.O. at Netley. He retired in 1908 and received the C.B. in 1917. He leaves a widow and one son.

Medicine and the Law.

A Muddled Bequest.

THE late Mr. Robert Newton appears to have made his own will, or at any rate whoever did so failed to check accurately his property and his language in disposing of it before he died. Consequently his estate has been impoverished by the necessity to take out a summons in the Chancery Division, the arguments on which required the presence of counsel representing (1) the executors, (2) the Attorney-General, (3) the treasurer of the Imperial Cancer Research Fund and others, (4) St. Dunstan's Hostel and the Salvation Army, and (5) the Royal Free Hospital. The will gave a bequest to "The Society for Cancer Research," and no such body exists. It also gave to St. Dunstan's Hostel "My 50 ordinary shares in Mexican Eagle Oil Company," whereas at the time of the making of the will and of his death the deceased owned bearer certificates of 150 fully paid ordinary shares in the Mexican Eagle Oil Company. The residue of the estate of the deceased was left on trust for the St. Dunstan's Hostel, the Salvation Army shelters, London, and the Royal Free Hospital. Mr. Justice P. O. Lawrence made an order that by the "Society for Cancer Research," the testator meant the Imperial Cancer Research Fund. This, it will be noted, was in accordance with the doctrine by which on such occasions a *cy-pres* interpretation—i.e., one "as near as possible"—is taken to express the wishes of the testator. The legacy to St. Dunstan's Hostel, his lordship held, applied to the 50 shares in the Mexican Eagle Oil Company, and did not include the 150 shares. It was ordered that the costs of all parties as between solicitor and client should be paid out of the residue. How much of the estate would be left for distribution by this was not stated, but it is evident that the testator largely contributed to the defeat of his own benevolent intentions.

Inquest at a Mental Institution.

At the County Mental Institution, Devizes, an inquest was held recently on the body of Mrs. S. Salisbury, the wife of a gardener at Corsham, Wilts. The case had excited interest locally on account of efforts made by the husband of the deceased to obtain the discharge of his wife in order that she might be at home (or in the Chippenham Poor-law Institution), and on account of complaints made by him that he had not been sufficiently informed as to an accidental fall which his wife had had, resulting in injury to the upper end of the femur, as shown by post-mortem examination. The X ray examination of this had given the impression that there had been an impacted fracture, but the mental condition of the patient had prevented the obtaining of a satisfactory photographic print. A letter to the husband had informed him of the fall, but had not mentioned that a fracture had been sustained or was suspected. There was, however, in addition, a division of medical opinion at the inquest as to the necessity for retaining the deceased in the institution, and Dr. A. E. Peake, vho had endeavoured on behalf of the husband to btain her discharge, was of opinion that she might ave been allowed to return home. In the end the ury found that death was due to "disease of the rain and lowness of her general health as from the octor's evidence," and added that "everything ossible was done for the deceased by the authorities." he inquest appears to have developed, owing to the ircumstances referred to, into something like an nquiry into the policy and conduct of the asylum uthorities and the Board of Control in retaining Irs. Salisbury at Devizes, and the fact that more efinite information had not been given to the husband s to the injuries she had sustained was evidently artly the cause of this, and was to be regretted. he accident, however, was proved by the evidence o have had nothing to do with the death, and bviously the fall described, which might have taken lace at any time and in any place, was much more romptly and efficiently dealt with in the institution han it could have been in the home of the deceased.

Rent of a Lock-up Surgery.

Numerous decisions have made it clear that remises which are used partly for business, trade, r professional purposes and partly as a dwelling-ouse, are regarded as a dwelling-house under the ent Restriction Acts, if they were originally let at ast partly as a dwelling. It is, however, also established that premises originally let for business purposes nly and afterwards used either wholly or partly as a welling-house are not entitled to the protection fforded by the Acts. A correspondent consults us s to whether the rent of a lock-up surgery is restricted nder the existing Acts. No doubt this depends rgely upon the purpose for which the house was let o him. If, as is probably the case, it was let to him ith the intention that the ground floor should be sed as a lock-up surgery and the remainder as a welling-house, the whole of the premises could roperly be regarded as a dwelling-house under the ent Restriction Acts, for in that case the house ould have been "let as a dwelling." On the other and, in the case of McDougall *v.* Bell, heard on pril 8th of this year, the facts were that a doctor ad leased premises comprising four rooms, the lease roviding that they were to be used for no other usiness purpose than that of a medical practitioner. he doctor used two of the rooms for professional urposes and the remaining two were occupied by a oliceman and his wife, who acted as the doctor's aretaker and help. It was held that this was not a welling-house as the people who occupied the house welt there as the servants of the doctor who used the remises only for his business purposes. In this case, hich is one of the latest on the point, Mr. Justice cton said that the real main and substantial purposes f the user of the premises was a question of fact. egarding the increased rent which is being asked om our correspondent, it is, of course, legitimate for e landlord, where a tenant sublets part of a house, increase the rent payable by the tenant by an mount equivalent to 5 per cent. of the net rent of e part sublet, and in that case the tenant can increase e subtenant's rent by 10 per cent. of the net rent f the part sublet.

Medical Inspectors in Nullity Suits.

The President of the Divorce Court recently nnounced in court that the medical inspectors ppointed for the purpose of nullity suits had resolved give their services gratuitously in the cases of poor ersons. This action on their part places them on e same footing on such occasions as the barristers nd solicitors who appear for poor persons. Sir enry Duke referred to the sacrifice of emoluments tailed by a "self-denying resolution," upon which ose concerned are to be congratulated. The relief fforded by the Divorce Court thus becomes increasgly less a monopoly of the classes that are comparavely "well-to-do," through the combined action of embers of the professions of law and medicine.

Correspondence.

"Audi alteram partem."

INTRA-OCULAR TENSION IN MYOPIA.

To the Editor of THE LANCET.

SIR,—In my Arris and Gale lecture three years ago (THE LANCET, 1921, i., 469) I set out my conviction that I had discovered the cause of myopia—namely, that it was produced by dilatation of the eye through increased intra-ocular tension caused by back pressure through the veins of the eye. Further observation has led to unexpected results. Not only does the myopia remain stationary on the advice given below, but it may diminish, and in some cases the eyes may even become emmetropic. The patient should be told to avoid any exercise which causes the veins of the neck to stand out, as, for instance, lifting a heavy weight in a stooping position, moving up and down on the hands or the use of dumb-bells, and not to bend over a book in reading or writing. There is no need to restrict the reading so long as this is done with comfort. The eye evidently possesses a power of contracting under diminished intra-ocular tension; to what extent this may occur is a matter for investigation. My object in writing this letter is to bring these facts to the notice of those who have to examine the eyes of school-children. I am, Sir, yours faithfully,

F. W. EDRIDGE-GREEN.

London, S.W., Oct. 9th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—There is always a danger of a discussion on principles and important subjects trailing off into trivialities, and Mr. Pitts's letter would have the effect of helping to side-track a great forward advance in social care. I had already noted the effect of Circular 1279 as a hold-up in the school dental service for the forthcoming number of the *Journal of School Hygiene*, and therefore now only refer to some points of objection.

Mr. Pitts shifts the ground when he apologetically says the real issue is not the efficiency of the dental dressers. The whole case stands or falls on the shorter training, providing persons who can give hygienic instructions and do minor work more cheaply and for practical school purposes just as well as if they had had years of wide-range training. This has been shown for public health purposes by Fones, the originator of the dental hygienist movement, and borne out by its success in America, New Zealand, and where tried in this country, so that it may be taken to be a possibility which experience has placed above mere theoretical discussions.

Again, Mr. Pitts's experience with the recently qualified dentists is against all we have heard for years. My own impression for the past 20 years was that there was a general shortage for the whole country, and it is only in terms of the whole country that it can be discussed. I am not alone. In the report of Sir George Newman, where he discusses the situation rising out of the report of the Dental Committee, he says: "The first fact of the situation is therefore a shortage of dentists" (Report, 1920, p. 97). "There are fewer dentists now in proportion to the whole population than there were 40 years ago, but there is a considerably greater need now than then." The Dentists Act Committee were of the opinion: "The number of registered dentists entering the profession is only likely to suffice for the service of the rich and comparatively well-to-do." These opinions probably deprive the theory of a plethora of dentists, of its value as a reason for holding up a great forward health movement.

For the qualified dentist, Mr. Pitts tells us the "examinations are not easy, and cover a wide field," but we do not need a steam-hammer to crack nuts, and it is not likely that public authorities will pay for all this luxury training that is unrequired. They cannot afford to pay for ten dentists with a five years' training, when for all practical school purpose nine dental hygienists, each with a 12 months' training, and a superintending dentist to whom they can refer cases, will completely cover the field at a much smaller cost.

The immense value of school dentistry was first officially put forward in this country in the Report: "There is no way of dealing with money in the interests of public health which will return so enormous a gain to the population for the small expense required as this matter of school dentistry. Dentists never touch this class of child, and there is here no competition between the private practitioner and the public servant" (L.C.C. Med. Off. Educ., 1907). This adumbrated the school dental service before it had started. Now, I am equally certain that a dozen years hence there will be ten dental hygienists at work in the primary school to every registered dentist. Why try to stand in the way of progress? "It will be worse for the cow." The whole question does not affect dentists alone, nor is it a matter of dilution of labour, as I am afraid some of our friends may think. It is the development of small specialties of a somewhat expert nature, in a restricted field, for voluminous public services. The demand is there, it is urgent. If it is not met the prevention of disease remains still afar. But prevention cannot wait. It must be got in as full measure as is possible now. It must be general, it must be simple, it must be cheap, it must not be barred by any interests. So long as it suffices, and serious risks are negligible, we must not stand on ancient rights or pedantic formulæ.

The only solution of the general school, and it may be added pre-school, dental service, not for a tenth as at present but for all children, that at present offers itself is the employment of 10,000 comparatively cheaply trained but quite efficient dental hygienists in our primary schools, with a few of the more costly but fully trained dentists and doctors as the final controls. There are about 5000 names on the Dental Register, of whom about 3000 are fully trained. The sooner the end is attained the better for our public health, for in many places it is these hygienists or none. We must always inculcate that the preventive hygiene of the teeth is a matter in the first place for each single individual, and only in the last resort for a specialist.

I am, Sir, yours faithfully,
James Kerr.

Mecklenburgh-square, W.C., Oct. 20th, 1924.

THE SPAS IN TRANSITION.

A PLEA FOR A NATIONAL POLICY.

To the Editor of The Lancet.

Sir,—May I be allowed, as a convinced advocate of British waters, who has lately had an opportunity of investigating some of the chief spas in Italy and Switzerland, to offer to your readers the following notes and suggestions? The need for national stocktaking and reconstruction since the war has obliged those who are responsible for the spas of England to face the question, how these valuable health resorts may be best developed and utilised. Various interests are, of course, vitally concerned. I am dealing with the question simply as a neglected branch (as I believe) of medical science and practice. I venture to write you now because these latest impressions very greatly confirmed my opinion that a wise development at the spas as a whole is greatly needed in our country, and is indeed over-due.

1. *Specialisation of the Spa.*—At all the spas visited the special and individual characters of the water or baths are carefully defined, and the main indications (and contra-indications) for their medical use are prominently put forward. For instance, at Acqui the muds, and at Salsomaggiore the brines, are specially studied in their various applications. It follows that all forms of treatment, apart from the waters and baths, are considered of secondary importance.

N.B.—In former days there was a degree of specialism at the spas. In the last century a great many accessory methods were introduced, which in some places at home and abroad have obscured the original treatment. Consequently a very wide range of indications is now claimed for many spas. A reaction, however, has set in. It is clear that a rational and considered specialisation within the national group of spas is essential.

2. *The Practice of the Mineral Water Hospitals.*—These hospitals, such as the fine institutions at Salsomaggiore and Rheinfelden, show the same adherence to the main treatment and to the prescription of limited indications for its use. In these institutions accessory and surgical treatments are avoided, and one may watch, in cases of tuberculous glands or joints or bronchial asthma, the effects of treatment simply by brine baths or salt inhalations, &c.

N.B.—The Mineral Water Hospital affords the best available conditions for the study of the particular methods of the spa, used for selected cases and upon a large scale. It will be generally agreed that the results of treatment in these institutions are not adequately represented in medical literature. A standard system of measurements, records, and statistics for the British Spa Hospitals could no doubt be devised, and should prove of much scientific and practical utility. It is obvious that well-directed research in these hospitals is greatly needed in all countries.

3. *Official and Medical Control and Support.*—One or two of the principal spas in Italy are owned by the Government. The proper department supervises all spas, and confirms the appointment of the medical directors (vide infra). The national railways and the Italian Office of Tourism make a great contribution to the prosperity of the spas, and especially facilitate the visits of medical practitioners and students from home and abroad.

4. *Spa Practitioners.*—Every thermal establishment in Italy has its own medical director, who is responsible for all the treatment given. In addition to the medical directors, a body of consultant university professors is now attached to the Italian spas. In the new State Thermal Establishment at Salsomaggiore, for example, 12 consulting-rooms are provided for them and their assistants. They are selected as specialists in the maladies for which the local treatment is employed—e.g., diseases of the throat, of children and of women—and attend the spa regularly throughout the season.

N.B.—Such methods may bring increased prestige to the spa, and the directors certainly benefit by the coöperation of medical men of wide knowledge and experience. But can the visiting professor compete with the best local practitioner in his intimate knowledge of particular waters and baths? The results of this system will be awaited with interest, but the virtual disappearance of the old type of practitioner must be viewed with regret. For the reputation of many spas has been founded upon his experience.

5. *A New Specialism in Practice.*—There is arising a new order of specialists—not in the diseases that they treat, but in the remedies that they use. In the handling of baths and waters they are the acknowledged experts. In both medical and public opinion the spa is becoming a place for the exercise of the highest skill in certain forms of treatment. Each country has its own method. In France an increasing number ot practising hydrologists confine themselves to their specialty, and occupy the winter in travel, or studies at the various institutes of hydrology. In Italy no medical man can be appointed as medical director without a competent knowledge of this branch of treatment. It is the aim of the teachers of hydrology in continental universities to attract to this specialty a certain number of highly qualified men, and to give them facilities for the necessary theoretical and practical training.

N.B.—Specialisation in the treatment of incipient and chronic disease at the spas is an inevitable and wholly beneficial development. Each national group of spas offers an attractive field for clinical study and practice, and few men and localities may sometimes produce the finest work.

All the facts, in my judgment, point to the same nclusion. To meet the requirements of science d practice in England I would plead for a compre- nsive and national policy. Without entering upon tails, upon which my mind is entirely open, the uiding principles, as I conceive them, may be stated s follows: (1) the coördination and development of ritish waters, under medical authority; (2) post- aduate lectures in hydrology at the universities;) facilities at one university for the systematic aining of hydrologist practitioners. Much is said, d truly, about the need for research, but research turally follows the institution of teaching.

I am, Sir, yours faithfully,

London, Oct. 10th, 1924. R. FORTESCUE FOX.

FACT AND THEORY IN RADIO-THERAPY.

To the Editor of THE LANCET.

SIR,—I should like to assure Dr. Hernaman- hnson that I have not tried to read anything into s letter that I thought was not there.

1. I still cannot agree with him that in making the rong premiss that "unless a radiation penetrates the in it can have no effect on underlying organs," any ysical theory is disproved. That ultra-violet diation is very easily absorbed by the skin is a ysical fact, and the physical theory or theories which e linked with the phenomenon are those based upon e processes of molecular absorption. I do not think at any of these theories are weakened or disproved the statement cited, but we are both agreed that the asoning was wrong. I have only tried to make this int, because it seemed that for once theory was ally not at fault.

2. Animal tumours when removed from the body d given doses of X rays between transplantations come more resistant to X rays. Observations of is kind have not, for obvious reasons, been made on the human subject, so the rest is inference, and think we cannot carry actual conclusions further. agree with Dr. Hernaman-Johnson that in a mour mass we are dealing with cells in different ages of vulnerability towards radiation, but I ink that the studies on normal lethal doses show rtain limits over which this vulnerability extends, t that these limits are widely extended by the perimental process referred to.

3. Dr. Hernaman-Johnson is invariably generous his references to experimental work. He says that looks to experiments "to furnish new ideas which ay be tried out on actual patients." But then alas! cannot grant us so much, for a few lines later on read, "But when all this is admitted, one cannot ft' the results obtained for experiments on animals d apply them forthwith to the human subject."

I am, Sir, yours faithfully,

hysics Department, The Middlesex Hospital, W., Oct. 20th, 1924. SIDNEY RUSS.

CUPATIONAL DISEASES OF HOP-PICKING.

To the Editor of THE LANCET.

SIR,—I was interested to read Dr. W. J. Donovan's article in your issue of Sept. 20th scribing two cases of dermatitis from hop-picking d Dr. C. J. Streich's letter on the same subject a tnight later. I have seen several cases amongst the kers this season in South-West Kent. Dr. A. H. B. rkham, of Staplehurst, called me out to see a ubtful case of scarlet fever with him. The rash was upational, as the exposed parts only, particularly knees and wrist, were affected. On inquiry at the dical Mission hospitals and dispensaries quite a mber of such cases have been noted. Dr. B. E. den, who was in charge of the hoppers' hospital and pensaries in Marden district, states she noted cases. Another occupational disease in hoppers is te catarrhal conjunctivitis. I saw three severe cases of this affection. Both eyes were markedly infected, there was a copious purulent discharge and also distinct photophobia. Dr. Ebden reports 55 cases of this description. The condition is known amongst the pickers as "hoppers' eye"; the cases I noted were all children. Still another occupational affection I have observed is what is known as "hoppers' gout." I saw two cases of this under treatment at the Medical Mission at Horsmonden. The wrists, the joints coming directly in contact with the hops, were swollen and tender. There was no inflammatory condition of the skin in these cases.

These three occupational affections—dermatitis, conjunctivitis, and synovitis—are in my opinion, produced by some irritant from the hop plant. Generally they have been attributed to the chemical washes used on the plants, but in the present year, owing to the remarkable absence of "vermin" from the hops, no washes have been used. This points to the plant itself being the cause. The question is an interesting one and opens a field for investigation. Over 60,000 pickers come into South-West Kent every September. Their accommodation presents a serious problem, and there is much need for improvement in the type of dwellings provided and the sanitation of the same. Fortunately, concurrent with the past exceptionally bad season greater efforts have been made than hitherto by voluntary agencies to provide for the medical treatment and nursing of the pickers. New hospitals or dispensaries were opened at Marden by Mrs. Spender, at Horsmonden by the Hoppers' Medical Mission, and at Capel and East Farleigh by the Chelsea Branch of the British Red Cross. These alone report the treatment of 5061 cases with 8608 attendances. This is remarkable work for purely voluntary effort. Many of the workers are nurses or V.A.D.'s with war service. From my experience of the past two seasons there is ample room for more to follow the good example.

I am, Sir, yours faithfully,

S. NICOL GALBRAITH, M.B., D.P.H.,
M.O.H., South-West Kent.

Public Health Office, Tonbridge, Kent, Oct. 16th, 1924.

THE DANGER OF STRONG APPLICATIONS FOR OPHTHALMIA NEONATORUM.

To the Editor of THE LANCET.

SIR,—May I through your columns draw the attention of practitioners to the danger of continued use of strong applications in the prevention or treatment of ophthalmia neonatorum? Every year since St. Margaret's Hospital for ophthalmia neonatorum in London was opened by the Metropolitan Asylums Board there have been admitted two or three cases in which both corneæ have been destroyed or very severely damaged by the use of perchloride of mercury in strengths of 1–500 to 1–3000, used four or five times a day; or by nitrate of silver, 10 or 20 gr. ad ℥i. used as drops two or three times a day. Although these drugs properly applied in correct dilutions are satisfactory, there is great danger if they are not properly used. I therefore generally teach classes of midwives and others who attend this hospital to use protargol 10 per cent. or acriflavin 1–1500 in castor oil as both safe and effective in the prophylaxis and treatment of the disease.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 16th, 1924. M. S. MAYOU.

QUERY DRUNK.

To the Editor of THE LANCET.

SIR,—Referring to the note in your issue of Oct. 11th (p. 771) on the magistrate who pressed a medical witness to say whether or not a man was "drunk," I remember this question was discussed some years ago when I was a divisional surgeon of police. Two definitions were then given; one, said to be in an Act of Parliament, ran thus : " A man is drunk if he has any sense or function impaired by the use of alcohol." This is, of course, much too strict for a non-prohibition country. The second, which I believe is the present standard for the Metropolitan police, is : " A man is drunk (in a police sense) if he is so under the influence of alcohol as to be a nuisance or a danger to himself or others." Needless to say, a man in charge of a horse and vehicle is a greater danger than if on foot, and one in charge of a motor-car a still greater danger than the driver of a horse-drawn vehicle, as the car has not even the brain of the animal. Of the many tests for " drunkenness " one of the best is for the suspected individual to try and stand on one foot with the eyes shut. In my time the divisional surgeons were instructed to say " drunk " or " sober," and not " under the influence of alcohol " or " has been drinking." But there were often troublesome cases, especially when the person's own doctor came and said he was sober.

I am, Sir, yours faithfully,
A. Charpentier,
Formerly Divisional Surgeon, X Division,
Jersey, Oct. 17th, 1924. Uxbridge Station.

THE CLINICAL THERMOMETER AS NOXA.

To the Editor of The Lancet.

Sir,—May I supplement your Annotation on the above (Oct. 18th) by pointing out the importance of *rubbing* the thermometer and not merely wiping it? Were we to trust more to friction there would be far less need for disinfectants, or for clinical thermometers which can be sterilised by heat.

I am, Sir, yours faithfully,
F. R. Walters.
Crooksbury Sanatorium, Oct. 20th, 1924.

Obituary.

JAMES ALBERT GIBSON, M.D. Edin., D.P.H. Irel., M.B.E.

Dr. James Albert Gibson, medical officer of health for the Isle of Wight Rural District, who died at King's College Hospital on Oct. 12th, at the age of 59, was a native of Aberdeen and received his early education at the Edinburgh High School. He studied medicine at King's College and University College, London, and graduated in medicine and surgery at the University of Edinburgh in 1889. After qualifying Dr. Gibson practised for a time at Hornsey, and held appointments under the Post Office, the Board of Education, and the Civil Service Commission. In 1906, having obtained the public health diploma of the Royal Colleges in Ireland, Dr. Gibson settled in the Isle of Wight, where he succeeded the late Dr Joseph Groves as medical officer of health for the Isle of Wight Rural District. Soon after he took up office the appointment of medical officers of health by county councils was made compulsory under the provision of the Housing, Town Planning, &c., Act, of 1909. It was generally believed that Dr. Gibson would be the first county medical officer of health for the Isle of Wight, and it was a great disappointment to him that he was not finally selected. The terms of the appointment, however, were not such as could be accepted by the medical profession at the time and he stood loyally by his colleagues. To those who knew him intimately any other course would have been impossible, and he had the satisfaction of knowing that his action was thoroughly appreciated. He threw himself with increased energy into his district work and carried out many reforms in characteristically unobtrusive though determined manner. He held the rank of captain *à la suite* in the R.A.M.C. Territorial Force, and during the war was specialist sanitary officer to the Portsmouth garrison. At the time of his death he was county director of the British Red Cross Society in the Isle of Wight. He also held the post of medical superintendent of the Isle of Wight Joint Hospital Board, and was at one time school medica officer of the Isle of Wight County Education Committee. A colleague writes of him : " He was a man of sound judgment, no lover of change merely for the sake of change, but when convinced that reforms wer due a very doughty opponent of the reactionary Through his death the public health service has los a highly competent and resourceful health reformer who will long be held in affectionate remembrance b those who were privileged to be among his friends.

Dr. Gibson was the author of several articles o public health and sanitary subjects.

JOHN HAMMOND MORGAN, F.R.C.S. Eng., C.V.O.

Mr. J. H. Morgan, consulting surgeon to Charin Cross Hospital, died recently in London in his seventy eighth year. He was a son of John Morgan, F.R.C.S and was born in 1847. He received his education a Harrow and Trinity College, Oxford, obtaining th degree of M.A. in 1873. His medical training wa given him by St George's Hospital, and he becam a Member of the Royal College of Surgeons in 187 gaining the Fellowship three years later. Aft continuing his studies for a time at Vienna, he becam surgical registrar to St. George's Hospital and subs quently assistant surgeon to the West Londo Hospital. Mr. Morgan specialised in the surgic diseases of children, and held many appointments this connexion ; he was surgeon to the Alexand Hospital for Hip Disease and to the Hospital f Sick Children, Great Ormond-street. When the Lo Mayor Treloar Cripples' Hospital was founded Alton some 17 years ago, Mr. Morgan was nominat a member of the original medical board, on the sugge tion of the then presidents of the Royal Colleges Physicians and Surgeons, and by the unanimous vo of his colleagues he was elected chairman of th board.

Sir Henry J. Gauvain writes of him as follow " It has been my great privilege to be intimate associated with Mr. John Morgan during the pa 16 years. In his work for the Lord Mayor Trelo Cripples' Hospital no one could have been more zealo in carrying out the duties his position entailed. the more urgent calls on his time diminished retained ever more keenly his interest in the work Alton. He was deeply interested in the advanc made in the technique of the treatment of o patients, and, tenacious to the sound principles which conservative treatment of surgical tuberculo are based, rejoiced in all advances made on these lin An ardent sportsman and a distinguished athlete (won the Inter-Varsity three miles three years in succe sion at Oxford and became President of O.U.A. his activities were limited of recent years by reason a severe accident in the hunting field. Neverthele till comparatively lately he managed to travel a gr deal, one of his latest considerable journeys be taken with his friend, the late Sir Frederick Trev to the West Indies. Since his retirement gardeni was one of his great hobbies. During the great he played his part while in his seventieth year medical chief of the Croix Rouge Hospital for wound soldiers at Nevers. He typified the old-fashion surgeon, dignified, courtly, with a high sense of d and a direct manner which concealed the kindest hearts and the most generous of instincts."

Mr. Morgan was at one time examiner in surg at the University of Oxford. He was a Knight Grace of the Order of St. John of Jerusalem in Engla a Companion of the Victorian Order, and recei the Médaille de Reconnaissance de la Républi Française. His publications include many papers various medical journals on surgical subjects. 1898 he was Lettsomian lecturer of the Medical Soci of London (and at one time was president of t society), his subject being the Surgical Affections the Urinary Tract of Children. To Heath's Diction

Surgery he contributed an article on Surgery of the nd. Other papers were Opening and Drainage of ints (*Guy's Hosp. Reports*, 1879) and the Treatment Traumatic Stricture (*Practitioner*, 1888).

ARLIAMENTARY ELECTION: MEDICAL CANDIDATES.

NOMINATIONS were completed on Oct. 18th, and e medical man has been returned unopposed to the use of Commons—namely, Prof. Thomas Sinclair, o represents Queen's University, Belfast, in the nservative interest. Prof. Sinclair was returned opposed for the same constituency at the General ection in 1923. The Scottish Universities constituy, which returned three members unopposed at the t election, is now being contested by four candidates. o of these, Sir George Berry and Sir Henry Craik, in the last Parliament. The latter, although not nedical man, has always been a good friend to dicine. The single seat for London University is ng contested by four candidates, three of whom medical men.

Polling takes place next Wednesday, Oct. 29th, when following medical candidates will submit themselves election. Those who sat in the last Parliament are icated by a dagger sign ; those who stood unsuccessly by an asterisk.

Candidate.	*Constituency.*	*Party.*
C. Addison	Hammersmith, South	Lab.
Ethel Bentham*	Islington, East	Lab.
George Berry†	Scottish Universities	C.
John Rose Bradford	University of London	C.
F. G. Bushnell	University of London	Lab.
W. A. Chapple†	Dumfries	L.
Stella Churchill	Hackney, North	Lab.
R. Dunstan*	Birmingham, West	Com.
t. W. E. Elliot†	Glasgow (Kelvingrove)	C.
F. E. Fremantle†	Hertford (St. Albans)	C.
O. Gleeson*	Portsmouth, North	Lab.
L. Haden Guest†	Southwark, North	Lab.
Somerville Hastings†	Reading	Lab.
Henry Jackson	Wandsworth, Central	C.
Graham Little	University of London	Ind.
Richard Luce	Derby	C.
J. J. Lynch	Walsall	Ind.
I. H. MacIver	Argyll	Lab.
H. B. Morgan*	Camberwell, North-West	Lab.
J. Robinson	Stretford	Lab.
Laura Sandeman	Aberdeen, North	C.
Alfred Salter*	Bermondsey, West	Lab.
E. G. Spero†	Stoke Newington	L.
T. Watts*	Manchester (Withington)	C.
J. H. Williams†	Carmarthen (Llanelly)	Lab.
ut.-Col. T. S. Beauchamp Williams†	Lambeth (Kennington)	Lab.

C., Conservative. L., Liberal. Lab., Labour. Ind., Independent. Com., Communist.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—er the delivery on St. Luke's Day of the Harveian tion by Prof. Sir Archibald Garrod, the President, Sir mphry Rolleston, presented the Weber-Parkes Prize Medal to Prof. A. Calmette, formerly of Lille, now director of the Pasteur Institute, for his researches on erculosis. The President referred to him as the foremost hority on this subject, at the same time alluding to his arches into other aspects of bacteriology. He then sented the Moxon Gold Medal to Sir Leonard Rogers, .S., for his distinguished researches in clinical medicine. loing so, he remarked that there were few tropical diseases egard to which Sir Leonard Rogers had not laid the lical profession under debt by his investigations. He itioned especially dysentery, kala-azar, cholera, and osy, and wished him success in his present researches the treatment of tuberculosis.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, YAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL ULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The owing candidates having passed the requisite examinais have been admitted Diplomates in Public Health :—

eorge M. Currie, James L. Connacher, John Yule, Robert Lockhart, Thomas M. Hunter, Margaret W. Kemp, Margaret M. U. Martin, Robert Armstrong, Andrew Hamilton, Alexander King, Mary N. Hendry, Alice McGlashan, Annabella McGarrity, Thomas S. McKean, Anne M. Forrest, May Marshall, James D. Dear, Archibald Penman, Annie G. Learmonth, Elizabeth M. Lindsay, Percival V. Pritchard, Ian M. D. Grieve, Francis B. Mackenzie, Jenny C. King, Winifred Wight, Isobel C. Macdonald, Elizabeth M. J. Currie, Reginald J. Matthews, Sheila Hunter, Alexander M. M. Grierson, Frederick W. Gavin, George W. Simpson, Phyllis M. H. Lunn, Ganapathi S. K. Iyer, Jean V. Kirkwood, Robert H. Dunlop, Margaret D. Cairns, Catherine M. Buchanan, William H. Carter, Christina Grant, Daisy B. McBride, Charles C. I. Slorach, Isabella P. Crosbie, and John C. Macartney.

The following candidates have passed the Triple Qualification Examination :—

FINAL EXAMINATION.

Naranapillai Ampalavanar, Eric S. Brohier, Charles J. B. Cave, Teck Y. Chia, Fakherddin El Ahmadi, Adolphus S. P. Fernando, Eric C. Gilles, Patrick Groarke, Rodney H. Holt, Trevor Hughes, James K. Hunter, Herman H. James, Bentis S. Jayawardene, John W. Keighley, Thomas F. Kelly, Colin McCulloch, Lachlan MacLean, Roy N. Martin, David S. Middleton, Thomas J. Muir, Marcellin Perera, Kathirgamer Poothatanby, Frank P. Rust, William Rutherford, David Stewart, John P. Subramamiam, George H. Tarras, Victor B. van Dort, William G. S. Pepper, Velayutham P. Thiyagaraja, and John A. McCann.

Medicine.—Ebenezer A. M. McKinney, David Isaacs, Hapuarachige Don J. Lazarus, Petrus J. Badenhorst, Abraham M. Filer, and William A. D. Oliver.

Surgery. — Joseph F. Hedley, James M. Rutherford, Rajaratnam W. C. Thambiah, Ernest G. Douglas, and Petrus J. Badenhorst.

Midwifery.—Joseph F. Hedley, Mikhail Youakim, Arcot Vasudev, Florence M. Smith, Irma E. L. Mackenzie, Isaac Chesarkie, Marian E. Owen-Morris, Rajaratnam W. C. Thambiah, Ernest G. Douglas, John P. T. Mills, Abraham M. Filer, Nashid T. Yusif, Joseph Horsham, William M. B. Rossie, Henry A. Newton, and William A. D. Oliver.

Medical Jurisprudence.—Piang L. Low, Donald Ross, Charles E. Millen, Arcot Vasudev, James L. Malone, Andrew Wilson, Francis D. R. Wylie, Kripa R. Bali, John L. Clark, Gavin J. Bell, Harold B. Wainer, Hamilton J. Marcelin, John Sullivan, Arthur G. Farquharson, Peter King, Joseph W. McVicker, Mary A. McGill, James K. Steel, George M. Johnson, Appacuttiar B. C. Doray, William Allan, and James E. Kennedy.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College on Oct. 15th Sir Harold J. Stiles was re-elected President for the ensuing year, Sir David Wallace Vice-President, and Mr. Alexander Miles secretary and treasurer.—Mr. Pirie Watson was approved as a lecturer in surgery at the Extra-mural School.

The following 23 candidates (out of 54 entered) who passed the requisite examinations between July 7th and 11th, 1924, were admitted Fellows :—

Francis G. Bell, Alfred P. Bertwistle, Edgar S. Clayton, Avabai J. Dodhi, John A. Douglas, Alfred M. Elliott, Augustine S. Fry, Calansuria A. S. D. Jayanayake, Lachlan M. McKillop, Israel Maisels, Thomas M. Millar, John Miller, Hector M. Monro, Hector Mortimer, John R. Muir, Samuel L. Navaratnam, Forster H. B. Norrie, Tharamale G. R. Panikkar, John W. Riddoch, Richard H. Rose-Innes, Harish C. Suri, William P. Tew, and Douglas St. J. Wigle.

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At recent examinations the following candidates were successful :—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics ; Medical Jurisprudence and Hygiene ; Pathology and Bacteriology.—Seymour F. Heatley (passed on high marks), Margaret H. Donaldson, Nancie N. Lowther, Samuel Smyth, William P. Cuthbertson, William Magowan, James C. C. Boyle, Ernest E. Satchwell, Herbert A. Brittain, Robert Kahn, George A. Walmsley, Wilfred Sinclair, Douglas Bluett, Mabel E. Brittain, Aileen Fair, Jane D. Fulton, William R. G. Gallagher, Gerald V. A. Griffith, Ernest H. Hall, Victor G. Horan, Ernest E. Malone, Harry Nelson, Andrew E. A. O'Byrne, Frances E. O'Connor, Philip F. Palmer, Grace J. Rankin, Stella C. Ross, William Russell, John C. T. Sanctuary, Lionel B. Somerville-Large, Hope Trant, Richard T. P. Tweedy, Edmund J. Walsh, and Charles F. M. Wilson.

DIPLOMA IN PUBLIC HEALTH.

Part I., Chemistry, Bacteriology, Physics, and Meteorology.—Kundanmal J. Bhavnani, John M. Gray, and William T. Hogan.

Part II., Sanitary Engineering ; Practical Sanitary Report ; Hygiene and Epidemiology ; Vital Statistics and Sanitary Law.—Edward Parker and Kundanmal J. Bhavnani.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS.

Cecil C. Coghlan.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the annual meeting of the Royal College of Physicians, held on St. Luke's Day, Sir William John Thompson was elected President. Sir William Thompson has been a Fellow of the College since 1902, and has served in the usual offices of censor and examiner. As senior censor and Vice-President for the past two years he has, owing to the continued illness of the outgoing President, had to perform many of the duties which ordinarily fall to the President. Formerly physician to Jervis Street Hospital, Sir William Thompson has been, since 1908, Registrar-General, first of Ireland, and latterly of the Irish Free State. He has declared that it is not his intention to hold the office of President for more than one year, in view of the fact that he is a Civil servant. In this he follows the precedent of the late Dr. T. W. Grimshaw, who was elected President of the College while holding the office of Registrar-General. The censors of the College elected on St. Luke's Day are:—In medicine: Drs. G. E. Nesbitt and R. J. Rowlette; in medical jurisprudence: Dr. W. A. Winter; in midwifery: Dr. G. FitzGibbon. The President nominated Dr. Winter as Vice-President. At the same meeting two new Fellows were elected: Dr. Mary E. T. Hearn, of Cork, and Major J. D. Sandes, of the Indian Medical Service. Dr. Hearn is the first woman to be elected a Fellow of the College, which, nearly 50 years ago, was the first educational body in the three countries to admit women as licentiates.

Rontgen Society.—A general meeting of this society will be held on Tuesday, Nov. 4th, at 8.15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London, W. 1, when the presidential address will be delivered by Dr. A. E. Barclay, the subject being the Growth of Radiology: Has the Rontgen Society kept pace with it?

Royal Commission on National Health Insurance.—This Commission held its second meeting on Oct. 15th at the offices of the Ministry of Health, Whitehall. Before proceeding to the taking of oral evidence the Commission considered the question of admission of the public and the press to the meetings at which such evidence would be taken. The Commission decided that the meetings should be held in private, but that a short summary of the business done should be communicated to the press immediately after each meeting, and that a verbatim report of the evidence should be published and placed on sale through the Stationery Office within about a fortnight after the date of the meeting at which it had been taken. Thereafter the Commission proceeded with the evidence of Sir Walter Kinnear, Controller of the Insurance Department of the Ministry of Health, who was questioned on the law and administration of the Health Insurance Scheme in its present form. Sir Walter Kinnear's evidence was not concluded when the Commission rose for the day, and he was to be heard further on Oct. 23rd.

Society of M.O.H.'s: Annual Dinner.—The annual dinner of the Society of Medical Officers of Health was held at the Hotel Cecil, London, on Friday, Oct. 17th, the President, Dr. Robert A. Lyster, being in the chair. There was a large attendance of health officers and their friends from all parts of the country, about 130 guests sitting down to dinner. The toast of "The Society" was proposed by the Bishop of Winchester, who described the medical officer of health as the life-preserver of the community and one who was always proposing the health of his municipality. He spoke feelingly of the housing conditions in urban areas and of the pressing need not only to make houses fit for heroes to live in but to make heroes fit to live in them. Dr. Lyster, in reply, said that no one would welcome more heartily the powerful aid of the Church than the public health service, and, as a matter of fact, close relation had existed between them for centuries. He quoted the dictionary definition of "Society" as a noun of multitude signifying "many" but not signifying "much," paying a tribute to Prof. Kenwood's successful effort to make that Society count for something during his prolonged tenure of the presidency. The public health branch of medicine saved life by thousands where the curative branch did so by individuals, and it was evidently the leading branch of medicine for the future. Dr. G. F. Buchan proposed "The Ministry of Health" and emphasised the need for coördination in order that British public health administration might remain the shining light among the nations that it now is. Sir Arthur Robinson, in reply, recited the multifarious activities of the Ministry, including such branches as the care of canal boats and insurance practice. It was the aim of the Ministry, he said, to get hold of all these principles by the health end. Prof. Harold Kerr proposed "The Guests," response being made by Lord Dawson of Penn, Sir Humphry Rolleston, Sir Francis Champneys, and Mr. H. J. Waring. "The President" was proposed by Dr. Lockhart Stephens, who put in a plea for the part-timer as a liaison officer between the public health authority and the general practitioner; and Dr. Lyster, in thanking the gathering for its warm reception of him, said he had never heard a word of animosity on the part of any medical officer of health against the part-timer; he did splendid work, and it was only the conditions under which he worked which required remodelling. Dr. Herbert Jones proposed "The Executive Secretary," and Mr. G. S. Elliston briefly replied. Excellent vocal music was provided during the evening by Miss Olive Sturgess and Mr. Norman Williams.

Naval Medical Compassionate Fund.—At th quarterly meeting of the directors of this Fund, held o Oct. 7th, Surgeon Vice-Admiral Joseph Chambers, C.B C.M.G., R.N., Medical Director-General of the Navy, in th chair, the sum of £69 was distributed among the sever applicants.

Aberdeen University Club, London.—Th bi-annual dinner of this club will be held at Gatti Restaurant, Strand, on Thursday, Nov. 6th, at 7.30 P.M On this occasion the George MacDonald centenary will celebrated. Dr. W. A. Milligan, 11, Upper Brook-street, W will be glad to hear from past or present graduates, m or women, wishing to attend the dinner or join the club.

Instruction to Pupil Midwives.—An instructio course, open to all midwives teaching pupils midwifer will be held by the Association of Teachers of Midwife at the Royal Society of Arts, John-street, Adelphi, W.C. on Oct. 29th, 30th, and 31st. Five lectures or demonstratio will be given each day, and among the lecturers are Dr. Lane-Claypon, Dr. J. H. Sequeira, Prof. L. McIlroy, Pr Winifred Cullis, Prof. T. B. Johnston, Dr. Harold Wall Mr. Farquhar Murray, and Dr. J. S. Fairbairn. Furth particulars may be obtained from the Secretary of th Midwives' Institute, 12, Buckingham-street, Strand, W.C.

Warren Triennial Prize.—This prize was found at the Massachusetts General Hospital, U.S.A., by the la Dr. J. Mason Warren in memory of his father, and will provides that the accumulated interest of the fu shall be awarded every three years to the best dissertati considered worthy of a premium, on some subject physiology, surgery, or pathological anatomy, the arbitrat being the General Executive Committee of the Massachuse General Hospital. Theses submitted for competition for t year 1925 shall be on some special subject in physiolo surgery, or pathology, and must be typewritten in eit English, French, or German. The amount of the prize the year 1925 will be $500. Dissertations will be receiv until April 15th, 1925.

Liverpool Medical Institution.—The inaugu meeting of the eighty-sixth session of the Institution w held on Oct. 16th, when there was the large attendance 170 members. The chair was taken by Mr. R. C. D the President, who referred to the death during the year three members of the Institution, Mr. Newbolt, Dr. G and Dr. De Jong. He also alluded to the steady increa of membership of the Institution. His inaugural addr was entitled "The Banner of Our Pride," in which sketched the ancient history of the Order of St. John Jerusalem in the Mediterranean and in England. T development of first-aid work through the agencies of t St. John Ambulance Association and Brigade was explain and also the origin and pre-war work of the British Cross Society. The war work of these two great organisatio combined in a joint war committee was illustrated many extracts from the official report. In conclusion, was shown how, through the ages, the ideals of those w had worked under the white or the red cross flag h remained the same and how that work had been for coun and for humanity.

Medical Sickness, Annuity, and Life Assuran Society.—Dr. F. J. Allan, who presided at the ann general meeting held at 300, High Holborn, London, W on Oct. 6th, called attention to the flourishing condition the society, which is now in its fortieth year. annual report for the year ending June 30th, 19 shows that the total premium income amounts £53,969, and the average rate of interest earned £4 16s. per cent. gross, and £4 0s. 11d. per cent. after ded tion of tax. The Sickness and Accident Fund the Life Assurance Fund have increased by £24,479, amount to £373,710. The number of policies issued by Sickness and Accident Fund was 433 for annual premi of £5037 17s. 10d. Sickness claims paid amounted £24,131 19s. 6d. The total premiums amounted £41,582 16s. 4d. The total of the fund at close of pe was £263,963 11s. 9d. The number of policies issued the Life Assurance Fund was 234, assuring £139,660 gr and £137,360 after deduction of reassurances, for net an premiums of £4446. The premiums amounted to £12, while the claims by death and maturity amounted £4950. The surrenders were £206 16s. 9d., and the annui paid £5330. The number of annuitants who died were and by these deaths annuities to the amount of £250 h ceased to be payable. The total of the fund at the of the period was £109,746. The report being adop Dr. C. Buttar and Dr. H. Hilliard were re-elected mem of the board of directors. A vote of thanks to chairman, proposed by Sir William Willcox, concluded proceedings.

MEDICAL LORD MAYOR.—Dr. George Stevens Pope s been selected as the new Lord Mayor of Norwich.

THE Hon. Herbert Crawshay Bailey, Barrister-at- v, has been appointed as Commissioner of the Board of ntrol in succession to the late Mr. A. H. Trevor.

LONDON COUNTY COUNCIL MEDICAL SERVICE.—It s been decided that for the future medical women in the vice of the L.C.C. shall resign on marriage. This rule ll not apply to the three married women medical officers present serving the Council.

ROYAL NORTHERN HOSPITAL.—Princess Louise, chess of Argyll, will open the new nurses' home on t. 30th at 3.30 P.M. The home is the first section of a ger building, and provides separate bedrooms for nurses and administrative offices, sitting-rooms, &c., for complete building, which will eventually accommodate ly 120 nurses.

UNIVERSITY OF BRISTOL: ASSOCIATION OF ALUMNI ONDON BRANCH).—The annual dinner of this branch will held on Friday, Nov. 7th, at 7.30 for 7.45 P.M., at Pagani's, -48, Great Portland-street, W. Lord Haldane will preside. mbers of the University and past members of its associated leges are invited to apply early for tickets, price 8*s.* 6*d.* clusive of wines), to the hon. secretary, Holloway natorium, Virginia Water.

ALTON COTTAGE HOSPITAL.—On Saturday, Oct. 18th, the presence of a large gathering, the new extensions to hospital were opened, in the absence of Major-General Rt. Hon. J. E. B. Seely, by Canon Causton, Master St. Cross, Winchester, whose father founded the spital. The ceremony of dedication of the wards d operation theatre was performed by the Rev. J. D. rter. The enlargement of the Institution consists of two w wards with accommodation for 16 extra beds, a surgeon's m and lobby, anæsthetic and sterilising rooms, a matron's m, an operation theatre, and two private wards. In dition there is a block for X ray treatment, an out-patient partment, and a new power house for lighting and heating rposes. The extensions, which cost some £18,000, were de possible through the generosity of Mr. and Mrs. F. B. mmers, of Froyle-place, Hants, in memory of their two ldren. Mr. Summers, who is chairman of the hospital nmittee, presided at the opening ceremony.

DONATIONS AND BEQUESTS.—The Royal Cornwall firmary will benefit under the will of the late Mr. John mes, of Truro, by a sum of £1000.—By the will of the late George Heaton, F.R.C.S., of Sutton Coldfield, Warwick- re, the testator left £1000 to the Birmingham General spital upon trust for investment, and to pay the income nually as to one-half to the person whom the medical mmittee of that hospital shall decide to be the best resident alified officer of that hospital for the year. He desired at in making such decision the committee should take o account not only the academical qualifications of that icer, but also his or her industry, attention to duties, nsideration for patients, and general disposition and rsonal character, so that the recipient shall be the best icer from the general point of view. One-fourth to the ter or staff nurse whom the matron (being guided as above) all decide to be the best of the year. One-fourth to the ter or staff nurse selected by vote of the whole of the ters, nurses, and probationers of the hospital.—Mr. fred Langton, chairman of the Hampstead General spital, has given that institution a new X ray depart- nt.—A cheque for £1500 has been presented to the yal Victoria and West Hants Hospital by the Executive d Carnival Committees of the Bournemouth Hospital turday and Sunday Fund; £1000 of this amount has been marked for the extension scheme fund of Boscombe spital.—Alderman John Pennington Waters, J.P., ngston Hill, Surrey, left £200 each to the Kingston ctoria Hospital, the Kingston Nursing Association, Kingston Day Nursery, the Association for Pre- ntive and Rescue Work, and the Central Aid Society.— James Brindley Sherwin, Tottenham, left £200 ch to the Prince of Wales's Hospital, Tottenham, and Middlesex Hospital, and £100 to the Mothers' Lying-in me.—Mr. George Aspinall Jackson, of Bradford, left 00 each to the Bradford Royal Infirmary, the Bradford ildren's Hospital, and the Bradford Nurses' Institution.— William Harrap Mason, of Leeds, surgeon, who left 9,115, bequeathed £1000 each to the Leeds General firmary and to Dr. Barnardo's Homes; £500 each to the eds Public Dispensary, the Hospital for Women and ildren, Leeds; and £250 to St. Peter's Church, Dewsbury, the poor at Christmas. Subject to a few legacies, he t the residue of the property to such Leeds charities as executors should select.

JUNIOR EDINBURGH CLUB IN LONDON.—The first dinner for the winter will be held at the Boulogne Restaurant, Soho, on Friday, Oct. 31st, at 7.30 P.M. Informal dinners are held monthly, and membership is open to all recent graduates of Edinburgh University. The hon. secretary is Dr. R. Scott Stevenson, 30, New Cavendish-street, W. 1.

UNIVERSITY OF SHEFFIELD.—A course of six lectures on the History of Medicine will be given by Mr. George Wilkinson during the winter session. On Oct. 31st he will speak on the Mediæval Practitioner, Chaucer's "Doctour of Phisyk"; on Nov. 14th the beginnings of the application of Physics to Medicine will be discussed, with special reference to Descartes, Borelli, and Boerhaave, and on Nov. 28th the beginnings of the application of Chemistry to Medicine (Paracelsus, Van Helmont, Franciscus Sylvius). On Jan. 30th, 1925, the lecturer will trace the History of the Microscope, and on Feb. 13th the beginnings of its application to Medicine (Malpighi). The final lecture on Feb. 27th will be devoted to the origin of the "germ theory" of disease. The lectures will be at 4.30 P.M. They are open to University students and to medical practitioners.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 27th.

ODONTOLOGY: at 8 P.M.
Presidential Address by Mr. J. G. Turner.
Paper:
Mr. E. D. D. Davis: Some Points in the Pathology, Diagnosis, and Treatment of Diseases of the Maxillary Antrum.

Tuesday, Oct. 28th.

MEDICINE: at 5.30 P.M.
Clinical Meeting at Charing Cross Hospital, W.C. Tea will be served at 5 P.M.

Thursday, Oct. 30th.

UROLOGY: at 8.30 P.M.
Presidential Address:
Mr. C. A. R. Nitch: Renal Tuberculosis.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Oct. 27th.—8 P.M., Clinical Evening: Exhibition of Cases and Skiagrams. (Cases will be on view from 8 to 9 P.M.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
FRIDAY, Oct. 31st.—5 P.M., Prof. Arthur Keith: Museum Demonstration: Specimens illustrating Points in the Applied Anatomy of the Heart.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 27th, to SATURDAY, Nov. 1st.—WEST LECTURE HALL, Royal Society of Medicine, 1, Wimpole-street. Lectures arranged by the FELLOWSHIP OF MEDICINE and open to all members of the Profession. At 5.30 P.M., Wed., Oct. 29th, Mr. Sampson Handley: Cancer of the Breast. Fri., Oct. 31st, Mr. R. H. Jocelyn Swan: Malignant Growths of the Kidney.—CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C. Special Intensive Course, third week. LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens. Tues. and Thurs., at 2 P.M., Clinical Demonstration by Dr. G. C. Low and Dr. Manson-Bahr.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C. Wed., 5.15 P.M., Dr. Heald: Lecture-Demonstration: The Uses of Other Electrical Currents.—HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W. Special Intensive Course in General Medicine and Surgery, first week.—DISEASES OF CHILDREN (COMBINED COURSE) at the Paddington Green Children's Hospital, Victoria Hospital, and Children's Clinic. Special Intensive Course, first week.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Oct. 28th.—4.30 P.M., Dr. L. R. Yealland: Syphilis of the Central Nervous System.
FRIDAY.—4.30 P.M., Dr. C. E. Sundell: The Rheumatic Child.
Daily: Medical and Surgical Clinics, Clinics in the various Special Departments, Surgical Operations, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Oct. 27th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks-Davis: Throat, Nose and Ear Dept.

WEDNESDAY.—11 A.M., Medical Registrar: Medical Wards. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—12 noon, Dr. Scott Pinchin: Diseases of the Heart. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Mr. Simson: Gynæcological Operations. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Dr. Burrell: Medical Out-patients.

SATURDAY, Nov. 1st.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 30th.—4 P.M., Dr. Nabarro: The Bone and Joint Lesions in Congenital Syphilis.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Oct. 28th.—5 P.M., Dr. H. W. Barber: Immunity. Anaphylaxis.

THURSDAY.—5 P.M., Dr. W. Griffith: Principles of Treatment. General.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

WEDNESDAY, Oct. 29th.—(At the Northern Hospital). Mr. Hugh Reid: Head Injuries.

THURSDAY.—(At the Stanley Hospital.) Mr. Courtenay Yorke: Ear, Nose, and Throat Cases.

FRIDAY.—(At the Royal Infirmary.) Mr. Thelwall Thomas: Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, Oct. 28th.—4.15 P.M., Mr. C. Roberts: Empyema.

FRIDAY.—4.15 P.M., Prof. W. W. C. Topley: The Control of Diphtheria by means of the Schick Test.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)

TUESDAY, Oct. 28th.—(At the Royal Infirmary.) Mr. W. S. Kerr: Diseased Tonsils.

FRIDAY.—(At the Royal Hospital.) Prof. A. J. Hall: Some Sequelæ of Epidemic Encephalitis.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.

(Course of Lectures on the Health of the Commonwealth.)

WEDNESDAY, Oct. 29th.—4 P.M., Dr. C. W. Saleeby: Helio-Hygiene.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.

(At the Medical Society of London, 11, Chandos-street, W.)

MONDAY, Oct. 27th.—6 P.M., Dr. Thomas Beaton: Sensation, Perception, Ideation, and Memory.

Appointments.

Paddington Green Children's Hospital: WILLIAMSON, B., M.B., Ch.B. Edin., has been appointed House Physician; HALLEY, G. S., M.B., Ch.B. St. And., House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: JONES, F. C., L.R.C.P. Lond., M.R.C.S., Cwmbran, Monmouth; PARIS, W., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., Kirkwall, Orkney.

Vacancies.

For further information refer to the advertisement columns.

Bolton Union, Townleys Hospital, Farnworth.—Second Asst. M.O. £225.

Bradford Children's Hospital.—H.S. £100.

Bradford Royal Eye and Ear Hospital.—H.S. £120.

Bristol University.—Directorship of Clinical Obstetrics.

British Honduras.—Asst. M.O. $2430.

Burnley Union, Primrose Bank Institution.—Res. M.O. £300.

Cancer Hospital, Fulham-road, S.W.—H.S. for six months at rate of £100. Also Anæsthetist.

Canterbury, Kent, and Canterbury Hospital.—Third Res. M.O. £125.

Cape Town University.—Wernher Beit Chair of Pathology

Countess of Dufferin's Fund, Women's Medical Service for India.—Two Med. Women. Rs.550.

Gesto Hospital, Edinbane, Skye.—Res. M.O. £300.

Hampshire County Council.—Dental S. £500.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Second Res. M.O. for six months at rate of £100.

Hull, City and County of Kingston-upon-Hull.—M.O.H. £1400.

Leicester, Isolation Hospital and Sanatorium, Groby-road.—Res. M.O. £350.

Leicester Royal Infirmary.—Hon. Radiologist. 100 guineas.

Lincoln, Lindsey County Council.—Third Dentist. £500.

London Hospital, E.—First Asst. to one of the four Med. Firms £400.

London Royal Free Hospital School of Medicine for Women, Hunter-street, Brunswick-square, W.C.—Third Asst. in Obstet. and Gynæcol. Dept. £270.

Metropolitan Asylums Board Infectious Hospital Service.—Jun. Asst. M.O.'s. £500.

Newport Education Committee.—Asst. Dentist. £450.

Oswestry, Shropshire Orthopædic Hospital.—Two H.S.'s. Each £250.

Pendleton, Municipal Maternity and Babies Hospital, Seedley-terrace.—Asst. Child Welfare M.O. £608 8s.

Plymouth County Borough.—M.O.H., &c. £1200.

Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £200.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s for four months at rate of £80. Also Sen. R.M.O. £100.

Queen's Hospital for Children, Hackney-road, E.—Phys. in charge of Skin Dept.

Reading, Royal Berkshire Hospital.—Hon. S.

Rochester, St. Bartholomew's Hospital.—Res. H.S. for six months £250.

Royal Chest Hospital, City-road, E.C.—P.

Royal Eye Hospital, St. George's Circus, S.E.—Hon. Asst. S Also Clin. Assts.

Royal Naval Medical Service.—Surg. Lieuts. 25s. per day.

St. John's Hospital for Diseases of the Skin, Leicester-square, W.C—Clin. Assts.

St. Mary's Hospital, W.—Director of the Dept. of General an Special Pathology, &c. £800.

St. Mary's Hospital for Women and Children, Plaistow, E.—Res M.O., and Asst. Res. M.O. for six months at rate of £175 an £130 respectively.

Swansea General and Eye Hospital.—H.P. £175.

West London Hospital, Hammersmith-road, W.—Surg. for Dis. o Women. Dermatologist. Also Hon. Medical Radiologis

The Chief Inspector of Factories, Home Office, London, S.W announces the following vacant appointments: Bethn Green, London; Aberayron, Cardigan; Coggeshall, Esse

Births, Marriages, and Deaths

BIRTHS.

DAGGER.—On Oct. 13th, at 14, Howard-road, Morpeth, Nor umberland, the wife of R. Leslie Dagger, M.D., M.R.C. of a daughter.

PURVIS.—On Oct. 17th, at Strathnaver, Helensburgh, th wife of Major M. Purvis, Indian Medical Service, of daughter.

WYNN PARRY.—On Oct. 14th, at Denison Hall, Leeds, to M and Mrs. Henry Wynn Parry, a son. Grandson of M and Mrs. R. H. Parry, of Glasgow, and Sir Berkeley an Lady Moynihan, Leeds.

MARRIAGES.

COLLEY—THOMAS.—On Oct. 17th, 1924, at St. Michael's, Woo Green, London, Thomas Colley, F.R.C.S., younger son Mr. Thomas Colley and Mrs. T. Colley, of Preston, to Elean Mary, elder daughter of the Rev. Principal D. J. Thoma O.B.E., M.A., J.P., and Mrs. D. J. Thomas, of the Traini College, Wood Green.

HAWLEY—SANGUINETTI.—On Oct. 15th, at St. John's, Stanmor Arthur Thomas Hawley, F.R.C.S. Edin., to Joyce Myfanw Sanguinetti, only daughter of Mrs. Sanguinetti, of The Wy Elms, Stanmore.

DEATHS.

FOSTER.—On Oct. 13th, at Quetta, Ena Dorothy Foste M.R.C.S., L.R.C.P.

WOOD.—On Oct. 18th, at Southernhaye, Lyme Regis, Willia Edward Ramsden Wood, M.D., aged 75.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices Births, Marriages, and Deaths.

CEYLON MEDICAL DEPARTMENT.—At the closi session of the Ceylon Legislative Council on August 28 the Governor, Sir William Manning, said that t medical department of the colony had expanded ve considerably during the last three years. In 1921 t expenditure was Rs.5,093,889, while in 1924 it w Rs.7,448,600. In 1921 the expenditure on medical resear was Rs.600; to-day it was Rs.70,142. 1,500,000 perso have been treated for ankylostomiasis in this perio For the treatment of parangi, the Ceylonese form of yaw nine whole-time medical officers are employed, one in ea province. Ten new hospitals and 33 new dispensari have been opened, and additions and improvements 40 hospitals have been made. A malariologist has be appointed with a staff to assist him; sanitation has be seriously taken up, and four medical officers of health a 65 sanitary inspectors appointed. For estate medic inspection six whole-time officers have been appoint The department has shared in the general developme which has taken place during the period 1921–24, and record of advancement is very satisfactory. Ceylon, t Governor concluded, is better supplied with hospitals a dispensaries than any other tropical colony.

Notes, Comments, and Abstracts.

MEDICINE IN A CORNER OF THE EMPIRE.

An Address Delivered at the Social Evening of the Royal Society of Medicine on Oct. 16th, 1924,

BY DR. W. T. GRENFELL, C.M.G.

I HAVE been wondering why the Royal Society of Medicine were interested in my proceedings in so far off a portion of the Empire. The only solution I could come to was that as they are prolonging life so much they are looking out for parts of the world to be developed for people to go and live in them. I was told to-day that the East is getting so tired of the West that they are going to push us back again, and that there would not be standing room in England if they were going to increase the longevity of its people. I hope, on that score, that you will feel a little increased interest in a country which was called, when I went there, "The dump-heap of the earth."

Labrador.

I hardly know what line to take in speaking to the Royal Society of Medicine. Of course, if you are face to face with concrete problems such as we have in Labrador, which take all your time and energies, you realise from the beginning that, as far as medicine and surgery go, there will be very little opportunity to discover a disease, much less a cure for it. So I have always been a kind of parasite on the profession in that way; and when we have a disease which we do not know anything about, one of us goes roaming to see if anybody else does. It is to gentlemen like yourselves and others that we have often had to come. During the 30 years I have been in Labrador we have come once or twice, with very great advantage to our people. So I assure you I am not only honoured at being asked to speak to-night, but I realise the enormous debt of gratitude we owe to these centres of civilisation, to the great advances they have freely given to the world outside, not less on this side of the water than on the other. I know that though we think sometimes of the Americans as a concrete whole, those who are over there realise that the Anglo-Saxon part of the population on the other side is closely united in sympathy and sentiment and everything else to us.

Labrador is the nearest part of the North American Continent to England. You have only to, as it were, walk straight across, and you walk into my hospital; you do not walk into the United States, nor even into Canada, you walk into a country that is maintaining the kind of community that gave England her place in the world that she occupies to-day: men who go down to the sea in ships. These schooners, as far south as Gloucester and the main Nova Scotian coast, and as far as Newfoundland, are manned by the very same type as followed Drake and Raleigh, and all the admirals down to Nelson, who fought for our liberty and freedom in sailing ships on the high seas. The men of Labrador are English seamen. That is one of the reasons why I stay there; I like the people, and I think we are giving them a chance which they never had before.

Pioneers of all races have almost always had very short-sighted visions of the capacities of countries which do not give an immediate return. We once wanted to trade Canada for a single West Indian island because Canada was never going to be any use. Most people have but the vaguest idea as to where Labrador is. The man who got nearest to it was a man I heard praying for Labrador one day, and, as people who say prayers do, giving some information to the Almighty. And he began to tell Him the boundaries of Labrador. But he got mixed up and wound up with: "God knows where that is." It is not very long ago that I spoke to a man who certainly had had opportunities to learn better, and who said he thought it was an island in the Gulf of Mexico! I am sure of this, that a section of continent with something like half a million square miles of land must, from the very fact that it is so large, have something to give back to civilisation.

When I first saw Labrador, it was from the deck of a 99-ton boat on which I had sailed across the Atlantic, and I cruised for three months between Greenland and Labrador. I had a small hospital on board, carrying six beds, and only an untrained male nurse. I did not know whom I was going to see, and I did not expect to see land. We fell in with a fleet sailing between Hudson Bay and Greenland, and I cruised with them. At the end of that time we had had about 900 patients. As the sea froze up in November and I had no means of wintering, I sailed back home.

Operating under Difficulties.

In Labrador the crassest of ignorance was causing death and suffering to a people that I often feel like taking my hat off to, because they are real men. And yet I have been able to do so little. What could you do? I have operated on the beach several times. I had some anæsthetics and so on with me, but these people did not like anæsthetics; they were like the men who, when chloroform was discovered, thought it was wrong to relieve people of pain, and so they put up with the pain. I remember to-day a woman with a very large incapacitating tumour in the leg. I offered to remove it for her, but she would not have an anæsthetic, and as I was quite alone I did not feel like doing it. But next morning she was aboard with six huge fishermen, and when I asked what they wanted, they said they had come to sit on the woman while I operated. The problems you are up against are largely those which give pleasure in the solving. If the joy of life is solving problems and feeling you have done something, then in Labrador you can have a good time. Owing to invitations of different people, and as help had been promised me, I made up my mind to go back again. I went to the London Hospital and told some of the nurses that I could not do justice to the people in any way without a nurse of some kind. The first two nurses I appealed to, though they had easy, remunerative, and sure jobs, offered to come with me, and sailed in the spring. I say that because I have offered nurses every kind of job for 40 years, and have never had them say No. I sent a nurse, some years ago, to a village 60 miles from hospital, and she was cut off from me by a break-up of the sea ice. We had a wire round the bottom of the bay, and I got a wire from her one day that a man had gone out of his mind and had ripped his bowel open. He had hyperpyrexia, and his bowels got mixed up with the hay he had in his cottage. He had picked up his bowels and walked into her house, and she wanted to know what to do. There was very little I could tell her over the wire; practically all I could say was, "Do the best you can." Six weeks later, when the boats came North, I saw a boat approaching, one of the long open trap boats which we had closed in and fitted up with a stove, and on it was the nurse and two patients. One was the man who had disembowelled himself. The nurse told me how she had tackled the case. She had some chloroform and she went to the Catholic priest. They talked about the case, and she said she had never done an operation in her life, nor had he. They agreed that if the priest would give the viaticum first, it would not matter so much. I can only say, as an illustration of the splendid class of patients I have to operate on, that when they brought the patient in, he was almost entirely cured, and he is working as a fisherman to-day.

Epidiascope Demonstration.

Dr. Grenfell then showed with the epidiascope a series of colour photographs depicting the life and customs of the people and the grandeur of the country's scenery. By means of a map he explained the relative position of the country, and said it was kept cold by the Polar current washing its shores. Little or nothing seemed to have been known when he first went there about the physiography and geology of Labrador, and he instituted a sort of symposium of knowledge which was available about it. There were no reliable charts to steer by; even those places marked on the map were not dependable. A day would come, he said, when the fiords—more beautiful than those of Norway, would prove a great attraction. The rivers were full of the most unsophisticated salmon and trout in the world. The cliffs were in some places 4000 feet high at the water's edge, and were an outcrop of the Appalachian Mountains. The valleys were filled with trees, which each year became larger and more valuable. Arrangements had been made to establish a hospital, as it was felt the people should have a place to make for in time of need. A wireless installation, one of the first in the country, was put up, and this was a great help, as the Government had three stations, 200 miles apart, whence calls from patients could be received.

Dr. Grenfell concluded by a reference to prohibition. Before this era there had been a great deal of neglect and impoverishment, especially of the children, as men would often drink away in a couple of days the profits they had made in a whole fishing expedition; hence rickets and beri-beri had been common. Matters were now in this respect very much improved. He mentioned also that the whale had proved a wealthy source of pituitary gland for the purpose of making medical extracts, and he had been instrumental in supplying a great deal of this material to Dr. Harvey Cushing and others. Whale was good eating, and especially the "small" muscles of the eye, which provided a joint the size of an average beefsteak.

"VARENECOSE" ELASTIC HOSIERY.

WE have received from Le Brasseur Surgical Manufacturing Co., Ltd., of London, Birmingham, and Paris, a sample of an elastic stocking which is constructed of a finely woven but resilient fabric giving firm support. The stocking has a good appearance and the material suggests durability,

A SERVICE OF HEALING.

A medical correspondent writes:—For three days of last week a Mission of Healing was held in the Parish Church of Frizinghall, a suburb of Bradford. The third day—on which I was present—found the church nearly full half an hour before the service began. People were being carried in on stretchers, others pushed in on bath-chairs, others helped in with one, two, or three attendants; only those with tickets applied for beforehand were admitted in the first place, though others came pleading to be admitted, and I fancy these were allowed in when the service began. Throughout the church, while waiting, was quiet and expectancy. Prayers were going up from those assembled, and well-known hymns were being played quietly by the organist. The organisation was good. Police outside the church regulated the traffic, and helped to make it easy for the sick folk to get into the church. Inside, stewards were at hand to show all comers to their seats. Ambulance workers were busy carrying, doctors and nurses were at hand to help the sick in emergency. The people came from different places of worship, many being accompanied by their ministers.

The service was opened with a short explanation from the Vicar of Frizinghall, Rev. J. H. Warner. He told how he had invited Mr. Hickson to come to his church, and what a response he had had to his offer of tickets of admission to the service. The Bishop of Bradford, Dr. Perowne, who followed, mentioned some instances of benefit received by those who had been present at the service the day before. He then led the congregation in prayer. The Missioner, Mr. J. M. Hickson, then ascended the pulpit. He is a layman of the Church of England, with the appearance of an ordinary robust business man. He has a strong voice, and speaks simply and fluently. His sermon was based on the need for more reality in religion, for more simple belief in Jesus Christ and His promises. He emphasised the fact that those receiving help from the service would only get what they were ready for, what their faith allowed them. He showed that we were weaving our own garments in our lives and actions. He explained at the outset that it was not any power of his that would heal the sick, but all power was from Jesus Christ. He said he had had missions all over the world and mentioned one in India. Mohammedans then came to be healed. He told them that he was acting in the name of Jesus Christ, and asked if they would acknowledge Him. Their answer was that Jesus Christ was called the "Healing Prophet" in their Koran. Mr. Hickson went on to say that it was no good him talking about physical healing only. It was peace in their hearts that folk needed as well as relief from affliction and ease from pain. He believed that everyone would go away at peace in their hearts if they were sincere in their prayers. Finally he said he did not see why any church should not be a healing church, if groups of those who believed it possible would meet and pray for this.

The sermon ended, Mr. Hickson asked that there should be no moving about or talking while the sick came to the altar conducted by the stewards. Mr. Hickson and the Bishop went first to those on stretchers and to those who could not walk. Mr. Hickson laid his hands on them, the Bishop gave the Church's blessing, and the patients were carried or helped out of the church. Women removed their hats and held them in their hands. All going up for blessing carried cards stating a few particulars of their illness. The rest of the congregation sat quietly or prayed; there was no emotional outburst. It was hard to see anything outside the church door on account of the crowd. The majority of patients came out as they went in, except for a look of calm on their faces. The Missioner laid no emphasis on immediate cure, but some cases have been reported. There is to be a service in the church at the end of the month, when report will be given as far as possible of the results of the mission.

SCHOOL DRESS.

In spite of the adverse criticism periodically levelled at the modern woman's dress, it is probable that never before—at least since the simple but becoming fashion of woad went out—has it been as hygienic as at the present day. Although until recently the dress of the child of school age still retained many of the old undesirable features there are welcome signs of an improvement in this direction also. In the borough of Westminster an educational campaign has been carried on for some time by Dr. Octavia Lewin, medical officer to the Greek-street centre. At a weekly "nasal hygiene and special exercise" class a careful examination is made not only of the physical condition of each child, but also of its clothing, notes being made not only of such defects as constricted neck-bands, strings of petticoats, tightness across the chest or under the arms, but also of the character, number, and weight of the garments worn. In the case of boys the special points noted are the collars, the presence of studs pressing on the neck, tight braces and waiscoats, and tight arm-holes. Great emphasis is laid by Dr. Lewin on the necessity for allowing plenty of arm-hole room both for babies and for older children, constriction in this region hampering the respiratory muscles and encouraging stooping. All garments are cut low under the chin so that the neck is left bare above the clavicle. A particularly sensible school dress, a patent for which has been obtained is so cut as to hang perfectly from the shoulders irrespective of adjustment; an adjustable box-pleat with lace fastening allows for growth and enables the garment to fit comfortably for from 18 months to two years. The dress is also adjustable as to length. Another hygienic device is the provision o a breast pocket with a handkerchief attached by a tab to a button sewn inside the pocket. The use of an "individua handkerchief" is rightly urged for even the youngest infants. The new ideas are catching the ear of the mother and the coming generation will certainly benefit.

TREATMENT OF PAINFUL CRAMPS AND MUCOUS COLITIS.

To the Editor of The Lancet.

Sir,—In reply to Dr. E. W. Dewey's inquiry regarding painful muscular cramps in rheumatoid arthritis, I have frequently found that the most effective remedy is validol taken in doses of from 20 to 30 drops at bed-time, an repeated every hour if required. I have also found dimol taken regularly, very useful.

In reply to "M. C.," I have found excellent results in the treatment of mucous colitis from the use of choleo-kinase It is, of course, necessary that special diet on Combe's line should be given; and care should be taken in the giving c aperients; my best results have been with the use o thaolaxin.

I am, Sir, yours faithfully,

Bath, Oct. 18th, 1924. Wm. Armstrong.

To the Editor of The Lancet.

Sir,—May I suggest to "M. C." that he tries the effec of large enemata of normal saline in mucous colitis. Th salt solution, at a temperature of 102° F., should be slowl run in from a douche-can holding two quarts and raise 18 in. above the level of the anus, while the patient i lying either on his face or his back, the former being, think, the more convenient position. The tube shoul just pass the internal sphincter. If there is any pain afte a few ounces of the solution have been given, this is probabl due to a spasm of the intestine, and if the rubber tube b pinched so as to stop the flow for a few minutes the pai will pass off and the injection can be continued till th patient has had as much as he can stand, which will probabl be nearly two quarts. The best time for the treatment which should be given daily, is in the morning, if possibl after the bowels have acted. As any intelligent patien can give himself the injections, the assistance of a nurse i not required. Aperients should be avoided, as they ma counteract the soothing effect of the saline. This metho of giving high enemata was recently described in the *Medic Review* by two American radiologists, who had watche on the screen bismuth injections thus administered pas into the ascending colon.

I am, Sir, yours faithfully,

Llangollen, Oct. 20th, 1924. May Rathbone.

THE "BROWNE" STERILISER CONTROL TUBE.

Effective sterilisation by steam depends both upon th steriliser and the person using it. By the adoption of th "Browne" Steriliser Control Tube (Albert Browne, Ltd Chancery-street, Leicester) the degree of heat which ha penetrated to the innermost parts of the contents may b seen at a glance. The device consists of a small, sto sealed glass tube containing a liquid which is unaltered a 100° C. (212° F.), but which after being subjected to 115 (240° F.) for ten minutes becomes straw coloured. Aft 20 minutes at the same temperature it becomes light brow and after 30 minutes or more a deep brown. Tubes place in a batch of dressings or other material to be sterilised wi indicate by their colour when taken from the sterilis the duration and the intensity of the heat to which th contents have been subjected. The tubes can only be use once.

Stethoscope.—In reply to an inquiry for a place on th Riviera suitable for a case of rheumatoid arthritis (Th Lancet, Sept. 13th, 1924, p. 582), Dr. H. M. Mackenz writes from Santa Margherita Ligure, Italy, to say that th place is sheltered from cold winds, the winter climate pleasant, November being the only rainy month. Patient report that they sleep better, and are more free fro rheumatic pains. The cost of living in an hotel is £3 t £3 10s. per week, including all taxes; a pension might somewhat cheaper. There is pleasant society, not too ga Rooms should be booked in advance, as the hotels ar likely to be full this winter.

An Address

[ABRIDGED]

ON

IDEALISM IN PUBLIC HEALTH.

ieing the Presidential Address delivered before the Annual Meeting of the Society of Medical Officers of Health on Oct. 17th, 1924,

BY ROBERT A. LYSTER, M.D., CH.B., B.SC.,
D.P.H. BIRM.,
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A RESPECTED member of the Council, and a former resident of this Society, has frequently reminded us iat once upon a time there was an attempt made by ie Society to draft and issue a leaflet describing ie proper way to disinfect a room, but that the tempt had to be abandoned because of the divergent iews that members were found to hold. Of course, is particular attempt may have been made at a ecially difficult time, when views upon the subject in iestion were undergoing considerable change, but ie incident serves to illustrate the fact that upon ethods of detail, and minutiæ of administration, e can quite healthily and properly differ until perience indicates the true solution. At the same me, there ought to be little or no difficulty in setting p standards or ideals upon which we can all agree, en while we may be pursuing different paths towards iem, in the hopes of attainment. If the ideal is tablished and kept in view, then each and everyone ill readily abandon his own particular path if, and hen, he finds that it is not leading towards the desired al.

Because the establishment of definite ideals by this ciety is so clearly desirable I decided to devote my ldress to-day to this subject, and to try to indicate riefly the various subjects which should be crowned ith ideals for our attainment.

Most people will agree that, during recent years, iere has been a definite revival of idealism. Hardly day passes in which we do not read of some form r another of idealism, constituting, as it does, the hief influence at work in almost every sphere of iman activity against the purely materialistic titude of life.

IDEALISM OR CANT.

In establishing and maintaining ideals we must careful to separate them entirely from various ints or obsessions which are so ready to obstruct ogress. One of the worst forms of cant posing as an eal is the claim, usually made by men of assured sition and substantial income, that the best kind professional man cares little or nothing about the oney he makes by the exercise of his profession. his belief is based upon the well-known fact that a ofessional man such as a doctor is often so enthusitic about his work that he will do it supremely well, hether he is to be paid handsomely for it or not. other words, he simply cannot do work with the le idea of making money by it, and is self-compelled do his best apart altogether from the subject of muneration. It is not that he does not want money, it that he cannot allow himself to do his work badly. n the other hand, he is usually just as keen as any adesman in selling his wares at the highest prices, id has at last realised that professional combination id collective bargaining constitute the only method hereby he can command a fair deal. For its own otection the methods and practices at present noted by the term "Trade Unionism" must sooner later be adopted by every profession. During the urse of my remarks I shall have more to say about nting catch-phrases masquerading as ideals. The leged "undermining of parental responsibility" by providing treatment for a weakly child is one of these masqueraders, and among others may be mentioned "the maintenance of the great voluntary principle" which is used as an excuse for handing over large sums of public money without adequate control. Similarly, the obstruction offered to great preventive measures in the alleged "interests of morality" by groups of persons who appear to be the victims of a form of sexual obsession is by no means an uncommon hindrance.

I propose to discuss the subject of idealism in public health under four chief headings—namely: (1) Professional: (*a*) General, (*b*) the P.H. branch. (2) Service ideals. (3) Ideals for our Society. (4) Personal ideals. I am well aware of the fact that these four groups are not at all distinct, being, in fact, inextricably interlaced, but the classification may give some coherence to the discussion of a subject that offers many temptations for digression.

PROFESSIONAL IDEALS.

A. *Training.*

Public health having come into its own to some extent and being recognised generally as a subject of outstanding importance, it is not unreasonable to suggest that the subject of preventive medicine should occupy an adequate proportion of the time of the medical student in training. The General Medical Council said, a few years ago, "That throughout the whole period of study the attention of the students should be directed by his teachers to the importance of the preventive aspect of medicine." One wonders what effect this pious expression of opinion, without the slightest backing in the way of regulations, and without any suggestion on the part of the Medical Council as to how this desirable condition should be brought about, has influenced the courses of instruction in the medical schools. After many years' experience as a member of the teaching staff of the medical schools, and as an examiner, I venture to say that expression of opinion has not up to the present had appreciable effect, and that it is not likely to have much so long as the medical schools continue to be, as they probably always will be, governed almost entirely by clinicians. Clinicians, as a general rule, will rarely be sufficiently interested in prevention to undertake any real teaching of it. In a few special cases clinicians have distinguished themselves by their interest and enthusiasm in prevention, but they are the exception and not the rule. Men who have for years devoted the whole of their attention to the diagnosis and treatment of disease are not likely to take up a fresh hobby and to become enthusiasts in prevention. By the time they become teachers in medical schools their interests have become established, and although they may make exceptionally able teachers in diagnosis and treatment, yet they are not likely to arouse in the average student any interest or enthusiasm for prevention.

If the prevention of disease and an increase in the amount of attention given to the public health is as desirable as seems to be generally admitted, then surely it would be worth while to carry out an experiment in some medical school, and to try to establish there a bias in favour of prevention. At the present time the average medical student leaves his school a fully qualified medical practitioner without any real knowledge of, and without any inclination towards, the study of prevention. This is entirely wrong, and must be altered if we are to make such advances in public health as we all desire to see brought about.

B. *Pay.*

The general question of professional remuneration is undoubtedly a matter which can and should be guarded and controlled by the profession as a whole, and it is gratifying to be able to record that substantial advances have been made recently in the organisation of the profession for mutual defence. Still more satisfactory is the fact that there has been

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on the part of the profession generally a gradually increasing realisation that the general subject of professional remuneration is inseparably bound up with the subject of the rate of pay of the public health service. Repeated warnings on this subject some time ago received scant attention, but the idea was driven home recently in an unmistakable fashion when the representatives of the medical profession, during the negotiations with the Ministry of Health concerning the subject of panel practitioners' pay, were confronted with a powerful argument in favour of gross underpayment in the form of a reference to the miserably inadequate salaries for which local authorities have during the past few years been able to secure whole-time medical officers with the consent of the Ministry. After this object-lesson there should be no further difficulty in securing the whole-hearted support of the profession in the reasonable demands now being made by the public health service for an improvement in the scale of remuneration. If we can, in connexion with this subject, bring about a general acceptance of the principle that underpayment of any branch of the medical profession constitutes not merely a danger to the whole profession, but also a danger to the public, then there should be no further difficulty in this matter. Underpayment of the public health service means a dissatisfied service, which is as much a public danger as a neglected epidemic or a hidden plague. It also results in the entrance into the service of men who are incapable of succeeding elsewhere.

The salaries scale drawn up by this Society with the British Medical Association will do a great deal in establishing the ideal of equal pay for equal work. Dr. Barlow, in his presidential address last year, called attention to the glaring anomalies which exist in various parts of the country with regard to remuneration, and very reasonably suggested that we did not deserve the title of a "public health service" until we had remedied matters. There is every reason to believe that our salaries crusade at the present time has made a substantial commencement on those lines, but the system of promotion in the public health service can never be satisfactory unless, and until, a scheme of national medical service is created.

PUBLIC HEALTH SERVICE IDEALS.

A. *Training.*

A matter which is immediately the province of the public health service and this Society is the special post-graduate training for the Diploma in Public Health, and the examinations to which such training leads. In the past the public health service, as represented by the Society, has had an inadequate voice in the determination of the courses of training and the kind of examination for the specialist in public health. Few will be able to contend that such subjects are a matter for a *General* Medical Council, or any small body of men, however able they may be in various other branches of medicine and surgery, who have had little experience, and in many instances no training in public health matters. The time has come when the public health service must insist upon taking a hand in the matters relating to the entrants into its specialty.

There are too many portals of entrance to the public health service, and too many examining bodies granting the Diploma in Public Health. One of the ideals to be established by the service and fought for by this Society should be a reduction in the number of qualifying bodies with a view eventually to establishing one portal. It is true that the new regulations in connexion with the Diploma in Public Health recently issued by the General Medical Council may result in a diminution in the number of bodies offering courses of training for this examination, and possibly in a decrease in the number of examining bodies, but it is the opinion of many experienced members of the public health service that the whole subject needs entire revision.

B. *Conditions of Work.*

1. *Lay Control.*—Perhaps the greatest of all t causes of comparative failure on the part of certa medical officers is the fact that their conditions work are unsatisfactory. It should be laid down an important ideal that the public health departme must control all the medical work of the local auth rity. The medical officer of health should be the r as well as the nominal head of that department, a he should not be subjected to interference or sup vision on the part of any other officer and should d only and directly with the local authority and committees.

2. *Security of Tenure.*—This has long been a still remains one of the ideals of the public heal service. Great were the rejoicings when it was p claimed that security of tenure had been obtain at long last. A later examination of the positi however, showed that what was called security tenure meant merely that the appointment could terminated only with the consent of the Ministry Health, who in its turn proved to be ready in certa cases to agree to reductions of salary without rega ing such changes as a violation of the principle security. The present position is that we have security at all, as a security of office without securi of salary is merely a farce.

3. *Superannuation.*—This is an ideal partia attained. In some areas a fairly satisfactory sche of superannuation is in force, but there are t improvements of the position which we must ma tain as ideals. Those are: (*a*) The adoption of t Superannuation Act should be compulsory all o the country. (*b*) We must insist upon special conc sions for medical officers of health, since no lo government officer requires by law anything l such a long period of training and apprenticeship is required from the medical officer of health.

4. *A Specialist Service.*—Our expectations of continuous improvement in the personnel of t public health service by the gradual replacement the untrained medical officer of health by the special officer have not been realised owing to the weakn of the Ministry of Health in granting their appro to the appointment of men without the D.P. qualification. The Order itself needs revision, b the Society should press for its rigid administrati in the meantime.

5. *Research Work.*—Great possibilities for resea work surround every medical officer of health a every member of his staff, and one of our id should be that this vast field for research should no longer neglected. The average medical officer health is so overworked as to have no time to g to research; opportunities for research should demanded by the service.

Dr. Robertson, in his presidential address, 19 expressed the view that a small committee should appointed to suggest subjects into which research urgently needed, and perhaps also to suggest general lines along which this should be carried I should like to repeat this suggestion. The allocat of public funds for the purpose of research wa brilliant idea on the part of Mr. Lloyd George, it raised hopes in all of us that some organised eff was about to be undertaken. Unfortunately, expectations have not been realised, and so far as public health service is concerned, the establishm of the Medical Research Council has been a gr disappointment. That body appears to have sympathy with, and no desire to coöperate with, public health service, and such attitude is to detriment of the public health. The present pol of concentrating essentially upon purely laborat investigations may lead to success, but I am pers ally convinced that general investigations in coöp tion with medical officers of health would lead m more rapidly to the solution of many of our d culties. Bacteriology has undoubtedly secured m brilliant successes, but it is matter of common kn edge and regret that it has apparently failed up to he present to help us to the extent we anticipated vith regard to many of our common infectious liseases.

Cancer research appears to be fascinated by the ancerous processes and the reactions of the healthy issues to such processes. It is concerned largely vith the surgical aspects of the subject, together vith purely laboratory and microscopical investigations. A study of the recently published statistical nquiry of Dr. M. Hindhede seems to indicate that t the present stage we might learn more from eneral conditions than from purely laboratory nvestigations.

6. *Propaganda.*—We should allow no limit to be set o the sphere of the health officer in this regard. There is no doubt in my mind that the public health ervice is the proper centre for organising and carrying ut schemes of public propaganda, and that the central ody in control should be this Society. No other ody possesses the necessary experience and scientific nowledge without which propaganda work may at ny time become a great and serious danger, and even scandal. Small wonder that Dr. Barlow, in his residential address last year, expressed amazement hat outside bodies are being seriously suggested by nedical men as the proper organisers of propaganda vork in connexion with public health.

C. *Ideals of Local Government.*

1. *Unification.*—Unification of the health service is nother ideal. The Ministry of Health Act, establishing he Ministry, seemed on paper to have secured central nification to a considerable extent, but experience as shown that our sanguine expectations in this irection have not been justified. The separation of he medical work of the Board of Education from the Ministry of Health is just as complete as ever, and any lleged unification in that direction is merely makeelieve. It has long been an established ideal of this ociety that practical unification in this direction is rgently necessary, and I have no doubt that during he coming session the prosecution of this campaign vill be continued.

Local unification of medical services is still a pressing eed. All public medical work should be combined in ne department under one head, and as far as possible ontrolled directly through one committee of the local uthority. Perhaps the most important unification, ery many years overdue, is the absorption by the ublic health authority of the medical work under he Poor-law. For many years the Poor-law has ampered and hindered public health work, both entral and local, to an extent which is by no means ully appreciated by the public.

2. *Areas for Local Government.*—Medical officers f health, as local administrators, have obtained aluable experience in local government, and we hould be in a position to advise the public as to the lterations that are desirable in the structure of local overnment.

The vital problems of local government structure ave remained virtually untouched for 30 years in ountry districts, and for more than 40 years in the owns. Governing bodies have remained unaltered hile the work of the local authorities has developed lmost beyond recognition, and during the same time arious and technical changes have rendered many of e old areas obsolete. The time is overdue for a igorous attempt to fit local government organisation the new opinions and changed conditions of to-day. Any Government which attempts a thorough form of local government is certain to arouse widepread opposition from vested interests; all political arties admit the urgent need for reform and yet all re afraid to tackle it. Pending the reorganisation of cal government areas very great reforms could be rought about by the simplification and cheapening the means of obtaining fresh powers. Private Bill gislation is ridiculously slow and costly and can nly be undertaken by comparatively wealthy areas, and it has been recently suggested that a standing committee of the House of Commons should be empowered, without special legislation in each case, to sanction the granting to local authorities of fresh powers for which precedent already exists. Such a suggestion should receive the active support of this Society.

3. *Voluntary Associations.*—An administrative ideal is that public money should be spent only under the direct control of the local authority. The practice of the Ministry of Health in giving direct grants to local voluntary associations is opposed to the public interest. The result is to encourage the voluntary association to disregard the local authority and to act independently, and in such circumstances a properly coördinated scheme, with adequate care and control of expenditure of public money, becomes impossible. At the present time the Ministry of Health and the Board of Education are paying large sums of public money direct to county nursing associations, district nursing associations, welfare centres, and all kinds of voluntary associations, with results that are deplorable from the economic expenditure of public funds and the point of view of efficiency of organisation.

The strangle-hold of the big voluntary associations upon public health work has become one of the dangers of health work. No one appreciates or values more highly than myself the valuable work accomplished by small local associations for after-care of tuberculous persons and defective school-children, and also by those voluntary workers attached to maternity and infant welfare centres all over the country. These deserve the highest praise and every possible encouragement, but the big associations and "national councils," with whole-time paid officers (a curious kind of "voluntary" work), invariably attempt work which, in my opinion, is far better done by officers employed and controlled directly by local authorities.

The point of view of the unfortunate recipient of the attentions of voluntary associations rarely receives any attention, but the deputation which attended recently upon the Ministry of Health had very definite opinions upon the subject, and pressed for the abolition of the voluntary system in connexion with the welfare of the blind, and the establishment of direct municipal and State control.

Everyone with experience of work amongst poor people knows quite well how bitterly they resent the inquisitorial visits of the average voluntary worker, and how differently they regard the impartial and tactful whole-time officer of the local authority.

The ideal that public administration should be carried on by public officers and not by voluntary associations can only be departed from with grave danger to the State and to the individual. This is specially the case in connexion with the administration of the Mental Deficiency Act. The result of the influence of voluntary associations and voluntary workers has been that the scope of the Act has been strained so as to include within it cases that are not really covered by any definition in the Act. The public as a whole would probably be amazed to know exactly what has been done under the Mental Deficiency Act in this direction, and I feel sure that the public exposure of a few cases would lead immediately to a demand for an expert revision of every case now in an institution. The best "voluntary worker" is the popularly elected representative of the public upon the various local authorities. His services are purely voluntary and every medical officer of health is the expert administrative officer of a body of *genuine* "voluntary workers" who are in their turn responsible to the public. It is a curious mentality which puts a halo round self-appointed members of so-called "voluntary associations" and their (usually unqualified) officers.

D. *Central Control.*

There has been a constantly increasing public danger due to a growing inclination on the part of the central authority to make rules and regulations for all sorts of detailed conditions, and to exercise a supervision over minutiæ of administration which, if successfully established, can only result in a degradation of local government. This pernicious tendency is the cause of an increasing irritation on the part of local government officers and local authorities. It is gratifying to be able to record the fact that recently the Prime Minister, and also the Minister of Health, expressed opinions that the powers of local authorities should be greatly increased, and that there should be greater freedom in local government.

IDEALS FOR THE SOCIETY.

A. *Membership.*

The first of our ideals with regard to the Society should be that it should secure as members every medical man in the employ of local authorities.

B. *Policy.*

During the coming year I hope that we shall begin by enunciating certain policies or ideals and in connexion with each policy commence a campaign in order to achieve progress. The Society should lead the way in public health. It should be one of the policies of this Society to issue from time to time manifestos to the public upon subjects of public health importance. Our influence was recently illustrated in connexion with the notorious milk circular issued by the Ministry of Health which in the opinion of most of our members was against the public interest. A very moderate amount of organisation on the part of the Society resulted in such an outburst of protest that the offending circular was withdrawn.

C. *Publicity.*

I have felt for some time that it is necessary for the Society to make itself more articulate. It must cultivate a public voice, not merely a professional technical voice through our journal, and must organise means whereby the public ear can be secured.

D. *The Protection of the Public.*

Another of our ideals for the Society of Medical Officers of Health should be the protection of the public from the extremist, whether the extremist be the alleged economist at one end of the scale, or the faddist who wants public money spent on all kinds of fantastic and hare-brained schemes at the other. It is heart-breaking to read the remarks recently made by an eminent medical man, to the effect that if the raising of the standard for the D.P.H. examinations should continue to result in an insufficient number of medical men entering the service on account of the inadequate salaries paid therein, then it might be necessary to reduce the standard of the examination in order to increase the supply. We do not believe that the public would allow such a betrayal of their interests.

As an illustration of the fact that the ideal solution often lies between the proposals of the extremists we may point to the opposing theories propounded by the extreme eugenists on the one side, and the sanitarians (as we might call them) on the other. The extreme eugenist is supposed to believe in selection and the elimination of the unfit as the essential means for racial improvement, while the extreme sanitarian has alternative "panaceas" in the form of sunlight, housing, welfare centres, and such like. Both these opposing bodies are right, and both are wrong. The scientific and thorough application of the eugenist principle is unthinkable in the present state of civilisation, but the necessary scientific principles which underlie the control of racial developments are perfectly sound, and will have to be followed sooner or later if the race is to be saved from unnecessary deterioration. The sanitarian's proposals must be applied to existing individuals, and the application of their methods will undoubtedly result in improvements. Without eugenic methods, however, there is grave reason to fear that the increase of insanity, the numbers a prolificacy of the feeble-minded, the survival of weakly, and multiplication at the wrong end, overload the race, and will drag it downwards.

The solution seems to be the adoption of b principles—i.e., the development of all members the community by means of careful control protection of the circumstances of life genera accompanied by a sane and scientific elimination of unfit of the future. We are trying at the present ti to carry out this in a costly and stupid way. institutions for the mentally defective are o crowded and local authorities all over the country being urged to spend immense sums in building m Large numbers of unfortunate people will be demned to lifelong imprisonment in these instituti and will never know the blessings of a free ordinary existence, or of ordinary family life. often hears it said that lifelong imprisonment is a more serious punishment than a sentence of de and yet there are fanatics, at present in control of situation, who insist upon these unfortunate pe being subjected to this life sentence instead of carr out the very simple process of sterilisation, w would enable a considerable proportion of t people to lead more or less ordinary lives, at littl no cost to the community.

INDIVIDUAL IDEALS.

Unless, as individuals, we concentrate on essential ideal of the prevention of disease, we must fail. We must be ready to sacrifice personal prejudices in favour of the crusade aga disease. At any time we should be willing to sacr our own advancement and advantage for the be of the service as a whole.

Our constant fear should be lest our met become stereotyped and our minds inelastic. Per the greatest danger of all is that our individual vi on religion and politics, which in most instances grown up with us, and have become part of should govern our public health views and bias work in preventive medicine. The elucidation such problems as the prevention of venereal disea simple if stripped of the prejudices which surro them. Similarly such thorny subjects as birth-con and mental deficiency lose many of their difficu if the subjects are considered from the point of of the improvement of the race. If we can esta a supreme ideal—i.e., the public health and prevention of disease—and turn away from o ideals which we may have followed for many ye then many of our present difficulties would disapp

Testing Results.

Among our personal ideals we must place attainment of scientific accuracy, coupled wit determination not to accept easily-tested statem without careful verification. Fallacies should alw be exposed, even if they are popular, wit hesitation.

Leading Public Opinion.

So much has the general policy of the So of Medical Officers of Health been hampered hindered by members whose views upon the su of public health, and particularly concerning prevention of disease are modified by outside siderations, such as political or religious views, with regard to sexual questions, &c., that at present time the Society, instead of leading p opinion, is actually lagging behind it in many resp While our wheels are being clogged by the preju of the prejudiced few, people outside the profe are overtaking us, and will soon be in advan our opinions as a Society.

Sex Mania.

One of the most insidious obstructions to w public health advancement is liable is due to a of persons who are obsessed with the idea of These people view everything through a kin sexual vision and offer opposition to the scientific prevention of venereal diseases because they fear that as soon as the public are fully aware of the fact that venereal diseases are easily prevented, they will immediately indulge in an orgy of immorality. These same people have recently discovered an argument against sterilisation of mentally defective persons as opposed to perpetual imprisonment, their suggestion being that mental defectives thus treated and allowed their freedom might indulge in sexuality on account of the removal of fear of the consequences. This sex mania breaks out in various ways. Recently it has taken the direction of an attack upon the healthy and hygienic mode of dress of the modern girl.

Encouraging Results.

We should derive considerable encouragement from the experience of our past ventures which have had even greater effect than we anticipated when they were being planned. For instance, the big reduction in infant mortality that has recently taken place is, in my opinion, due essentially to the entrance of the medical officer into the schools. This, instead of decreasing parental responsibility, set up an entirely new health ideal, which soon had a profound effect in increasing both parental and public responsibility, resulting in a rapid fall in infant mortality. Talk of interference with, or lowering parental responsibility in connexion with help given to poor people in order that they and their children may be kept healthy should not be tolerated by medical officers of health. It might just as reasonably be urged that the provision of first-class roads at the public expense has lowered the moral tone of the motorists, or that free education had weakened the national backbone.

Let us take courage. We are fighting against great forces of evil which threaten to damage or destroy the human race, but we are winning, and we know that we should be winning at a much greater rate if we concentrated on progress and disregarded those clutching hands which seek on all sides to hinder our progress. If we keep our ideals before us, we shall be like Christian, who "went on his way" while "Mistrust and Timorous ran down the hill." Individually, as medical men in the service of the State, and collectively as this Society, let us say with Christian, "I must venture . . . . I will yet go forward."

THE
TREATMENT OF MENTAL DISORDER ON A VOLUNTARY BASIS.

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Separate Treatment of Curable Willing Patients.

IN this article I wish to express my personal views as to the advantages and limitations of treatment of mental disorder on a completely voluntary basis entirely apart from certified cases, and to discuss the types of case suitable for this as well as those which actually present themselves. These views are based upon an experience extending over 15 years at mental hospitals of the County of London, nearly three years' work in hospitals treating neuroses and psychoses arising from the war, study of the methods obtaining at six of the chief continental clinics, and the results of 18 months' observation as medical superintendent of the Maudsley Hospital (since its reopening on Jan. 31st, 1922).

The Maudsley Conditions.

This article is intended to be supplementary to my first annual report which was recently published.[1] This report was confined in the main to a statement of fact, all opinion being excluded that might be controversial or have a bearing on possible legislation. I must emphasise that I alone am responsible for the views now expressed.

To render the present communication intelligible apart from the report it is necessary that I should here repeat the statements which the latter contained as to (*a*) the conditions of admission, retention, and discharge; (*b*) the purposes of the hospital. (*a*) The hospital is devoted entirely to treatment on a voluntary basis. Every patient is required before admission to sign a form of application which clearly intimates his right to leave the hospital within 24 hours of giving notice of desire to do so. No patient is admitted under certificate or is certified in the hospital either for retention there or for transfer to a mental hospital elsewhere. I shall hereafter refer to these as the "Maudsley conditions," and the hospitals where they might obtain as "voluntary clinics." (*b*) The purposes of the hospital are four—viz., research, teaching, provision of facilities for diagnosis, and curative treatment.

Opinion may differ as to the relative importance of these purposes, but I shall for the most part confine myself to the relation of the "Maudsley conditions" to one object—viz., treatment of patients solely with a view to cure. This relation seems likely to be the one of most general interest. It appears to me as desirable that research and teaching should be concentrated as that separate treatment of voluntary cases should be widespread. In fact, this concentration is almost inevitable for many reasons, including cost. Briefly, however, it may be said that the "Maudsley conditions" are not detrimental to the functions of research and teaching. In fact, the hospital provides a wider range of clinical material than almost any hospital in the country. The attendance at the out-patient department includes many examples of every type of psychosis and neurosis, and numerous forms of organic nervous disease. It is not possible to admit to the wards all cases of any type, but it is possible to treat there some cases of every type as long as is desirable. Any clinic undertaking only brief treatment of patients suffering from psychoses (even though these included some detained against their will) would have to eke out its resources with those of a mental hospital for chronic cases in order to be representative. In this direction the Maudsley Hospital is, of course, fortunate in being able to draw upon the enormous resources of the L.C.C. hospitals. What cannot be obtained from elsewhere as clinical material are cases at the other end of the scale of severity. I am sure the exclusion of certified cases is at present essential in England to the acceptance of admission by both organic and functional patients whose mental symptoms are really slight. Such cases being the most interesting and valuable for research, and the most instructive for teaching, it is essential to provide a system that will attract them. The possibility of demonstrating voluntary cases is merely a question of tact.

Classification and the Criteria of Admission.

From the standpoint of their attitude towards treatment patients fall into three groups: willing, unwilling, and incapable of expressing an opinion. By distinguishing those of hopeful and unfavourable prognosis six sub-groups may be recognised. There is now fairly general agreement that the opportunity of treatment on a voluntary basis for mental disorders should be extended to those incapable of paying for it in a private institution. Such opportunity, of course, existed in no institution provided out of public funds before the opening of the Maudsley. There is, however, much less agreement as to the view that the public provision for any of the above six sub-groups should be in separate institutions.

I wish to uphold the view that the aim should be to promote treatment apart from the certified of every possible willing case—at least every hopeful one—and further to discuss the limits of this possibility. It is possible that at some future date it may be thought an anachronism to compel those who are willing to accept an asylum (in its original sense) on account of chronic mental disorder to associate with those detained against their will on account of anti-social tendencies. If separation were possible, I believe it would greatly reduce the present discontent among patients and their relatives, which spreads from those resenting detention to those willing to remain, and I believe a surprising number would be found to belong to the latter class. So much is done, however, in the modern mental hospitals with parole, villas, &c., to mitigate the association of chronic willing patients and of the anti-social type, that it is mainly a question of feelings. I am aware of great practical difficulties in altering the present position. There is also an arguable case for the treatment apart from the chronic insane of even the "unwilling" recent cases, say for a year.

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[1] See THE LANCET, Oct. 11th, p. 761.

Ignoring for the present the cases of the willing chronic, of the unwilling acute, and of the "non-volitional" cases, whether acute or chronic, confining oneself to possibilities of the near future, willingness and likelihood of recovery *from the attack* should be the sole criteria for admission to a voluntary clinic, and neither "earliness" nor mildness of symptoms. In considering mental disorders and their treatment there is apt to be a considerable confusion between the terms early, recoverable, mild, and willing, and a tendency to assume that these are interchangeable, which is far from being the truth. I see no reason why separate voluntary treatment should be confined to "first attack cases." Numerous patients have been treated at the Maudsley who had had several previous attacks—even when some of the attacks had necessitated certification. Repeated admission of suitable cases to the clinic should be allowed here as abroad. I think no attempt should be made to lay down or enforce any legal rules as to the severity or type of mental symptoms which it is permissible to treat on a voluntary footing, provided always that the treatment required must be forthcoming—e.g., adequate supervision of those who might at times be dangerous to themselves or others. Certainty as to adequate treatment as well as real willingness of the patient require that authority to treat patients on the voluntary basis be only granted in such a manner as to admit of really satisfactory supervision by an external and expert authority. The danger of abuse in these matters would probably, however, be much less in a voluntary clinic under a public authority than in homes or small institutions run for private profit, whatever their rival merits in other respects.

The question of what type of symptoms will often be found to render it inexpedient to retain a given patient in a voluntary clinic is, of course, an entirely separate one from a legal limit. This question will be discussed later.

Advantages of Separate Treatment of Voluntary Cases of All Degrees of Severity.

(1) Much stress has been laid on the stigma associated with certification. I take leave to doubt that this will be much decreased by admission as a voluntary boarder or a non-volitional case to one of those mental hospitals whose names are household words. Especially would this be the case if these patients were treated with the involuntary inmates, and liable to be certified and transferred to that class in the same institution. The chief difference would seem to be in the patient's own feelings, and perhaps in some of those grosser disabilities (such as dissolution of partnership) apt to follow certification. On the other hand, there is no doubt that admission to an exclusively voluntary clinic would be distinguished by the public here, as it is abroad, from admission to a mental hospital.

(2) If it is desired to get cases early for treatment it must be recognised that the great majority of the public will not go or send their relatives to the ordinary mental hospital till this is unavoidable. This is, in part, a question of utterly unfair disrepute, in part of facts. Nobody is more aware than I of the absurdity of the charges made against the treatment in the mental hospitals, particularly those of the County of London with which I am familiar. Nobody could possibly have a higher respect for their work including its medical aspect. In my report I deprecated all comparison between the results of the Maudsley and the mental hospitals, because such a comparison is utterly unfair to the latter institutions. But there is a difference of attitude on the part of the public which is impossible to ignore, and which is brought home daily to those who have worked at both types of hospital. It is not possible entirely to abolish this distinction by patience and propaganda because it is not altogether unreasonable, depending as it does, on the indisputable fact that for some of their patients the mental hospitals are places of detention rather than treatment.

(3) It is possible to give a much higher degree of liberty in a hospital where all patients are voluntary and selected. This liberty is one of the chief requirements to attract patients. But even when restrictions are necessary they are much more cheerfully borne when there is an alternative to submission. Progressive restoration of liberty and responsibility outside as well as in the hospital is a most important feature of treatment, especially of the "neuroses," and is hardly practicable in a mental hospital.

(4) The institution of separate voluntary hospitals for hopeful cases seems to me the only chance of providing, for all such, suitable personnel in the numbers required according to modern ideas. There is undeniable difficulty in filling the insufficient present number of medical posts at the mental hospitals with energetic and efficient men interested in their profession. Exactly the same difficulty exists abroad, and it is inherent in the nature of the work. On the other hand, there is no difficulty on the continent in obtaining the large staff needed in the psychiatric clinics, especially when these are also neurological. I believe it will prove possible also to get a much better type of nursing staff for voluntary clinics.

The best evidence in favour of complete separation of voluntary cases consists in a difference of general atmosphere obvious to everyone working in a hospital admitting such cases only, and familiar with other hospitals where some patients are compulsorily detained. Coupled with the absence of the monotonous daily demands for discharge, which are so depressing to fellow patients as well as the doctors, one notes a greater degree of cheerfulness, contentment at least with the conditions of the hospital even if the patients are unhappy about other matters, and almost total absence of quarrelling with fellow patients. Patients are far more tractable, and breaches of hospital rules of any kind very rare. The attitude to both medical and nursing staff is quite different. An expression of gratitude on discharge by patients and relatives, whether in words or by letter, is practically universal. A large proportion of those discharged subsequently attend regularly in the out-patient department. Where this is unnecessary, many come back at intervals to see nurses and fellow patients in the wards, and this is encouraged. Requests for readmission are numerous from those who have had to be discharged owing to improbability of further material improvement, from those who have relapsed after improvement, and from those who have discharged themselves contrary to advice. The last type of such request has occurred several times within a few days of discharge ; it is acceded to where possible. All these differences depend upon the type of case under treatment as well as upon the treatment provided, and the system acts by selection as well as directly. But at least it may be said that it reduces the disagreeable aspects of treatment for those selected, and is therefore presumably conducive to recovery.

Respective Provinces of the Voluntary Clinic and Present Mental Hospitals.

Even were there a provision of such hospitals as the Maudsley for all willing cases of recoverable mental disorder, they would only be a supplement and not a substitute for the ordinary mental hospital. Experience shows that there are very numerous eminently recoverable cases that cannot be treated at a voluntary clinic—e.g., many cases of acute mania and acute confusional states—either because the patient will not consent to admission, or will not remain until discharge is safe, or is intolerably disturbing to other voluntary cases. There can be no doubt of the desirability of the extension to the ordinary county mental hospitals of the power to receive voluntary cases; many who have recovered from an attack will doubtless return there by preference in event of relapse. I think the power of receipt of "non-volitional" cases (with the right of discharge on request) would be chiefly useful in the ordinary mental hospitals for reasons discussed below. Neither of these arrangements, however, will in any way diminish the need for such hospitals as the Maudsley intended *solely* for voluntary cases. An extensive previous knowledge of the types admitted to an ordinary county mental hospital and comparison of these with cases treated at the Maudsley leaves no doubt in the mind of my colleagues and myself that a very large proportion of patients now certified could be treated in such clinics until it was clear whether recovery were possible, and in favourable cases until recovery.

Certain Objections to the Maudsley Conditions Examined.

Almost every conceivable criticism has been directed against this system in an entirely friendly spirit. The fact that many of the criticisms are mutually contradictory leaves it still possible that some are sound. In fact, there is some force in most of the arguments, but modification made according to the suggestions received would have disadvantages out of proportion. There is no one of the rules to which exception would not occasionally be desirable, but rules are necessary and hard cases make bad law. The acceptance of all the objections and suggested alterations discussed below would leave the Maudsley indistinguishable from the ordinary registered mental hospital. At the end of 18 months I am obstinately convinced that the great balance of advantage for the purposes of the hospital rests with rigid adherence to the policy of maximum liberty deliberately adopted. Among my colleagues there have been some familiar with the conditions of registered hospitals and of mental hospitals of this country, and of numerous clinics of the continent and America. I am not aware that one has held that the balance of advantage would rest with the reversal of any item of the policy adopted at the Maudsley.

(1) It was prophesied by some that it would prove impossible to fill the hospital. The figures for the first year's working are a sufficient answer. 1012 cases were treated, including 894 as out-patients and 452 as in-patients, and there was probably a nearly equal number of those applying by letter who were rejected as ineligible without interview. Fullness depends, of course, solely on stringency of selection for admission and readiness of discharge. Undoubtedly there is less pressure on male wards for neurotics, because they cannot afford to leave employment.

(2) It was said on the one hand that admissions would consist entirely of undesirable neurotics of whom it would be difficult to get rid, and, on the other hand, that it would prove impossible to treat neuroses and psychoses in the same hospital since those with milder symptoms would absolutely object to contact with others whom they would consider insane. The truth in these matters appears to be this. Here, as wherever voluntary patients are treated, *some* are of a dependent type loth to leave their refuge, but by no means all. There is no resemblance in this matter to the situation in hospitals for war neuroses and particularly those for pensioners. That cases of varying severity are incompatible is a fallacy, provided a fair chance is given for classification. The conditions of the acuter wards are not resented by those needing them. Many contentedly convalescing in acute wards to which they have been admitted will demand discharge rather than accept transfer to a quiet ward. There is little more difficulty about transfer in the opposite direction if all semblance of its use as a disciplinary measure is avoided. In view of the frequency of acute developments in cases where it is impossible to forecast these, to abolish treatment of severe cases would stultify the work of the hospital. The sympathy and tolerance which the less deranged show for those who are more so are remarkable. Practically the only intolerable characteristic is persistent noisiness, which will be further discussed later.

(3) *Admission of severe cases under certificate has been urged on three chief grounds:* (*a*) It would render the hospital more representative for teaching and research; this has been discussed. (*b*) It would render the Maudsley Hospital more useful as an auxiliary to the mental hospitals of the county by facilitating treatment of special cases from these. This would be an excellent object if it were not incompatible with the Maudsley doing its own work. In a majority of suitable cases the difficulty can be simply overcome by discharge from certificate, and this has been done in certain cases. (*c*) It would render possible treatment of some most hopeful cases: those of acute psychoses, where the patient is definitely unwilling. The arguments used below in connexion with the question of admitting non-volitional cases largely cover this point.

(4) *Retention under certificate of certain cases that give notice* has been advocated on the ground of experience in registered hospitals, showing that some voluntary borders are very unsettled till the decision to go or stay is taken out of their hands and then they rapidly improve. These may be balanced to some extent by anxiety cases aggravated by the fear of certification.

(5) *Certification at the Maudsley* of those cases needing transfer to a mental hospital has been thought desirable on the ground that it is the duty of the medical officer who has had the patient under observation to accept the responsibility. Personally, I think it would be an infringement of the spirit of the undertaking upon which a voluntary boarder is received. If a patient is to be certified for transfer it matters little to him who performs the act, but if it be at all practicable I think he should be sent elsewhere for examination by a doctor who may decide against the need for certification. During the tenure of the Maudsley Hospital by the Ministry of Pensions patients were certified for direct transfer to a county mental hospital by the medical officer in charge of the ward and myself as medical superintendent. It was perfectly clear that my visits to certain wards gave rise to uneasy wonder as to whose turn had come now, and any interview which I had with a patient was apt to be a source of terror. I do not believe it would be a material improvement to introduce outside practitioners to certify for transfer, as they would soon become known.

The Question of Admitting the "Non-Volitional" Patient to Voluntary Clinics.

It has been truly emphasised that exclusion of the certified prevents admission, at any rate for the present, not only of the unwilling but of the patients that are too confused to express an opinion either way, and that the latter class includes many of the most hopeful cases. It was decided at the Maudsley Hospital to accept this limitation and to await the passage of a Bill rendering possible the admission of such cases without certification (though subject to adequate safeguards before reception, and to the proviso that the patient would have the same right as a voluntary boarder to discharge within a specified time of his giving notice of desire for this). I should not regard admission under such conditions as any infringement of the voluntary principle, but I am much more doubtful than a year ago how far the legalisation of such admissions would benefit the Maudsley Hospital. I am fairly sure that it would not be of much advantage without considerable additions to both staff and structure. It is now clear that the total number of acute cases that can be obtained under the purely voluntary system is greater than the staff can manage. The problem, e.g., with many cases of mania is not to obtain consent for admission, but to get them to remain until discharge is safe, and this would probably arise with many of the confusional cases. It *might* prove possible without increase in the total number of severe cases to substitute non-volitional patients of better prognosis for some of the psychotics obtainable under entirely voluntary arrangements. But this would require very careful selection of cases, and if the change involved any decrease in power of personal selection by the staff of the hospital it would probably be detrimental and merely lead to a larger number of cases passing through the wards en route to the county mental hospitals. It is necessary to limit the number of noisy cases; persistent noisiness rapidly arouses protests (especially among those to whom the particular patient is unknown) and it raises the problem of getting rid of the noisy patient or losing several others. Moreover, those living in houses near the hospital object. When the accommodation for voluntary curable cases is increased, the reception of more acute cases, including non-volitional ones, will be very desirable if special sound-proof buildings can be provided, and almost impracticable without this provision. The coördination of the work of the voluntary clinics and of the mental hospitals would be greatly helped by the establishment (under the same authority controlling these) of receiving wards, replacing the present observation wards of the workhouses. Expert selection of cases for the two types of institution would then be possible, and patients could be returned for disposal if they became unsuitable for the clinics or unwilling while still requiring treatment. But if the voluntary character is to be maintained the access to the clinics for the majority of cases should be direct, through its own out-patient department, as at the Maudsley Hospital.

Cases Suitable for Treatment.

To me it is almost a truism not only that such hospitals as the Maudsley should exist, but that every hopeful case desiring treatment for mental disturbances is entitled to such opportunities of treatment, apart from those *detained* on account of such disorders. Suitable accommodation should be available to allow of this for every type of such cases, even though the cost per patient for such separate treatment should approximate to that for acute bodily illness (as it does at the Maudsley). But this will remain an ideal until the number of those willing to work and to pay for real improvement begins to approach that of the people who merely enjoy having their blood curdled with tales of imaginary horrors. Into the practical question of eligibility for treatment at the Maudsley three main considerations enter: (*a*) Prognosis; (*b*) the presence or absence of certain practically important features; (*c*) scientific interest. Each of these is a complex question; in practice they are inextricably connected. They are stated in order of importance, but here the last will be ignored, and the second discussed, before entering upon a necessarily brief essay regarding indications of prognosis.

Special Features Influencing Eligibility.

One possible primary division of mental cases is into those *with* and those *without* well-defined physical causes and symptoms. Such a division is, of course, largely artificial. One believes all mental disorders to have an organic basis, and, on the other hand, even where obviously physical factors are present, causes belonging to the three other groups mentioned below may even preponderate. Cases with organic disease, however, are especially eligible for three reasons: (1) Scientific interest, especially for investigation with a view to detection of changes that in lesser degree may at least contribute to determination of "functional" psychoses and neuroses. (2) Promotion of the hospital rather than the asylum atmosphere. Most similar institutions abroad are the university clinic in neurology as well as psychiatry At the Maudsley Hospital many cases of organic nervous diseases are admitted where mental symptoms are minimal or of bad prognosis. (3) Good prognosis in a large proportion of cases. The mental prospects of course, are usually proportionate to the curability of the physical disease, but this is by no means uniformly so. Mental recovery often only requires the establishment of some conditional or even temporary compensation, as in diabetes and Bright's disease, valvular disease, and arterio-sclerosis. In the latter recovery is common from a state simulating advanced dementia. Disregarding the frequency of general paralysis, causal organic disease plays a much larger part at the Maudsley than in an ordinary mental hospital, and is of much greater variety This is one of the features giving special value to clinical work here. An example is hyperthyroidism Though the term was confined to well-defined cases showing marked enlargement, with such symptoms as tremor, tachycardia, and vasomotor abnormalities there were 24 such cases among the first 1000 patients This is a much larger proportion than would be seen at an ordinary mental hospital, the explanation being that while a neurosis is almost constant in hyperthyroidism it only rarely leads to a psychosis. It is an interesting fact that of 24 cases of neurosyphilis in the same first 1000 patients, there was not one of the interstitial variety nor one in which antisyphilitic treatment did material good. Cases of the interstitial type are uncommon in mental hospitals but not so rare as this would suggest, and it might be expected that more would be seen here. Probably the explanation is that early signs are usually clearly physical, leading to attendance at a hospital for organic nervous disease, and that when mental symptoms occur they are most often of a kind unlikely to lead to application here, commonly deterioration of a sort apt to be mistaken for the dementing type of G.P.I. In the first 1000 cases there were 1 illustrating sequelæ of epidemic encephalitis; the proportion has increased lately.

"*Psychoses*" *and* "*Neuroses.*"—To me these terms denote two degrees of mental disorder that usually in the poor are respectively treated under certificate and not treated at all. If this is not the distinction they seem to be mere pseudo-scientific euphemisms corresponding to the more popular absurdity, "It is not mental, it's only the nerves." The difference proves often to be a temporary one; that it is more seems to be most strongly held by those whose experience for practical reasons is mainly limited to one or other type. I am not entirely unfamiliar with more elaborate distinctions, but perhaps my crude simplicity may resemble that of the child unable to see the king's new clothes. It is common and useful in practice to assure neurotics that such patients do not become insane; unfortunately it is not true I think no one with a year's clinical experience at the Maudsley would be disposed to deny the transition from typical neurosis to typical psychosis, either in a series of different cases or in the same case at different times. Maintenance of the reality of the traditional distinction between neuroses and psychoses is merely pandering to the popular tendency to regard insanity as something horrible and different from all other disease. Every effort is needed to break down the barrier. The possibility of joint treatment in voluntary clinics of neuroses and psychoses has been discussed it is not necessary to discuss its advisability because it is inevitable and in force in numerous continental and American clinics. At the Maudsley two-thirds of the beds are in wards suitable for treatment of "neuroses," but owing to the longer average treatment of such, only two-fifths of the first 1000 cases were "neuroses."

Particular Symptoms and Syndromes.—The relation of these to eligibility apart from prognosis cannot be extensively discussed. Cases of mania, though eminently recoverable, are disappointing on account of the frequency with which they give premature notice. They are almost the only favourable type with whom this is common. Noisiness rendering them unsuitable on account of fellow patients and neighbours has been discussed. Obscenity and extreme degrees of violence may require discharge where, as at the Maudsley, even the male acute ward is partly staffed by women. But, so true is it that male cases are often better nursed by women, that I think few desirable patients would need rejection or discharge if the ordinary staff were wholly female with a reserve of male nurses merely for special duties and emergencies. Paranoid cases, on account of disposition to include the hospital in their persecutory scheme, are usually undesirable. Suicidal tendency, in my opinion, should not be considered a bar to voluntary treatment, provided the patient will accept the measures necessary for his treatment. The "safety first treatment" of melancholia is responsible for not a few chronic cases and perhaps some suicides. It is time to face the inevitable reward of taking reasonable risks.

Indications for Prognosis.

Under this heading I propose merely to suggest considerations as to probable recovery from the attack of mental disorder which should at a preliminary interview influence one's decision regarding admission to a voluntary clinic.

(*a*) *Ætiology: General Principles.*—In every case of mental disorder four sets of causes are operative: (1) The innate structure of the whole organism; (2) the changes in it which normally or commonly occur at various ages or such physiological epochs as the events of sexual life; (3) changes induced and dispositions left as the correlates of mental experiences; (4) changes resulting from influences of a purely physical kind. Among the "functional" cases it is futile to try to discriminate groups due to one or even two of the first three factors. All three so interact in every case as to render useless attempts to separate such groups—e.g., Kraepelin's "paranoia."

(1) *Innate or early constitutional tendency* may be indicated by (*a*) family history, (*b*) very early anomalies, either intellectual or temperamental. Neither of these has much bearing on prognosis of recovery from the attack. (*a*) In no form of mental disease is heredity more pronounced than in the manic-depressive type. (*b*) Recovery is common from the psychoses of all forms often superimposed on amentia and constitutional psychopathic tendencies of every kind and degree. If the latter do not per se disqualify for social usefulness, they do not disqualify for treatment of the psychosis in a voluntary clinic. Particularly, of course, is this so when temperamental anomalies are themselves intermittent.

(2) *Association with particular ages and phases of life.*—Practically all extensive statistics bearing on this are vitiated by the fact that only certifiable cases—e.g., in adolescence—have been considered. The question of "dementia præcox" is discussed below. Recurrences in the elderly are, of course, quite hopeful; even first attacks are so, if not associated with dementia. The only other point of note in this connexion is the good outlook in cases *really* dating from pregnancy or childbirth.

(3) *Association with a recent external stress* is the first important single indication for prognosis in functional as in organic disease. There are, of course, various fallacies regarding the relation of the "stress" and the symptoms which cannot be detailed here. The adequate forms of stress correspond in number and relative frequency to the situations which give rise to intense unpleasant emotion in a human being.

(*b*) *Time Relations of the Disorder* are the second important indication. Recency and suddenness of onset of the present attack or a history of previous ones like it *really* followed by recovery are among the points rendering a case most eligible. But these points are so connected with the ætiology and form, that though these time relations are the most valuable index, their significance cannot be fully discussed here and no figures can be given.

(*c*) *Form of the Symptoms.*—This is the last and the most misleading indication for prognosis. Assessment of their value requires prolonged experience and a profound distrust of text-books. Given these one may at least appreciate one's ignorance. To my mind, the various subdivisions of the "functional" group of psychoses are merely syndromes whose names are descriptive terms for a somewhat ill-defined group of mental symptoms present at the moment. I do not believe that any one of them is likely to be more than that, or that the cases of any one group have a constant single cause, either physical or psychical, though presumably each group has *something* specific in its morbid anatomy of a kind which cannot yet be demonstrated. The tendency for investigation to end in the application of some name, and in satisfaction with a merely statistical prognosis based on that name, is a dreadful example of the power of words to stereotype thought. The course of disease depends upon cause, and it is therefore neither to be expected nor is it found that course is parallel to the clinical picture when first seen. The degree to which this is the case has been greatly exaggerated, and any correspondence depends largely upon a process of "waiting and seeing," followed by argument in a circle. For example, I believe the traditional prognosis of "dementia præcox" is largely arrived at by abstaining from applying the name except to cases which duration, &c., have already shown to be hopeless.

If the symptoms constituting *dementia præcox* were defined, and the name *schizophrenia* as a descriptive term without implied prognosis were conscientiously applied to every case showing those symptoms, then I think the prognosis would be found to be very different. I believe this to be borne out by results seen here in what one might term "acute dementia præcox" (of every sub-type), and that it is of great importance in regulating admissions. The schizophrenic mode of reaction depends largely on the age of the patient, regardless of cause, and so has no constant prognosis.

If one uses the term *paranoid states* to include all cases resembling Kraepelin's paranoia and paraphrenia (regardless of minor symptomatic differences—e.g., presence or absence of hallucinations and preponderance of internal or external factors in causation), then a proportion of such cases will be found to recover or to remit and recur in the manner described in text-books as characteristic of manic-depressive psychosis. A proportion will therefore justify admission, but I am not clear how they are to be distinguished by symptoms. Nor does the difference clearly depend on any of the ætiological factors, even could these be fully ascertained before admission, which is often not the case.

The term *manic-depressive psychosis* seems best applied in the sense of Kraepelin's later work to all those states where emotional anomalies are the prominent factors, whether of lifelong duration or occurring in a single attack or in recurrent phases of any form. This type is, of course, relatively favourable as regards the attack. But it merges (through transitional cases in which the misfortunes are ascribed to the faults of self and others respectively in varying ratio) into the paranoid types and so to the prognosis of this.

Under the term neuroses one may include hysteria, neurasthenia, anxiety states, and obsessional states. Their prognosis, of course, varies enormously with ætiology, time relations, previous treatment, and here perhaps especially evidence as to the usual "make up." An important point is the great frequency with which a case quite indistinguishable before admission from a "neurosis," which remains stationary as such, will later show symptoms clearly assigning it to one of the "psychoses," such as dementia præcox, manic-depressive psychosis, or a paranoid state. The distinction with certainty before admission is impossible. Personally, I am increasingly impressed by the difficulty of making anything but a statistical prognosis in all types of functional psychosis or distinguishing except by “ waiting and seeing ” those cases which are going to get well from the attack or permanently. Some tests, whether physical or psychological, on which to base an individual prognosis are a crying need. I think it is one of the great functions of a hospital like the Maudsley, treating all types of case and in touch with all the main mental hospitals of London, to lay the foundations of this. Great importance therefore attaches to efforts now in force to obtain all after-histories by periodical inquiries, and correlate these with symptoms and laboratory tests.

It might be said that the foregoing discussion of indications for individual prognosis in cases of functional mental disorder amount to a confession of ignorance. Constitutional predisposition is negligible, relation to external stress can often only be estimated after admission, form of symptoms is misleading. Recency and suddenness or previous recovery are the best indications, but to deduce the future only after sufficient experience of the past can hardly be called prognosis. A hopeful confession of ignorance is perhaps the beginning of wisdom. I call my view hopeful because it implies that there are hardly any recent “ functional ” cases where the chance of recovery can be excluded, and few that are not worth a trial under the best conditions. Our experience here points two morals, the need of ample similar accommodation and of patience in the most doubtful case. Perhaps the most humiliating kind of experience is the swift recovery at a mental hospital of cases sent there as probably hopeless. Perhaps the most satisfying is the protracted miracle of complete recovery in cases of melancholia—often delusional—kept for many months though seeming to hover on the brink of dementia or death.

FOUR NEOPLASMS OF THE EXTERNAL EAR.

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THE following four neoplasms of the external ear—three from the auricle and one from the external meatus—are of interest, because two of them demonstrate the insidious way in which malignant disease may begin, while the last to be described shows how easily a mistaken diagnosis may arise in the case of a rare condition.

I.—A. B., 52, a porter, attended at the Royal Ear Hospital in December, 1905. Two months earlier he had noticed a small nodule in the left pinna which “ felt like a shot under the skin.” This growth enlarged and ulcerated after one month. On examination, a hard, raised ulcer, about the size of a sixpence, was found situated in the fossa of the antihelix. No glandular enlargement was discoverable. The whole pinna was removed with the exception of the lobule, flaps being taken from the anterior and posterior surfaces of the concha. Recovery was uneventful. Microscopically the growth (which is now in the Museum of the Royal College of Surgeons of England) proved to be epithelioma.

II.—C. D., 56, medical practitioner, consulted M. Y. in December, 1911. He had noted for eight months the formation of a scab on the superior margin of the fold of the helix of the left auricle. The scabs either fell or were picked off, leaving a raw surface. This surface was about the size of a millet seed, and the tissue immediately beneath and around it was perceptibly thickened. The whole area did not exceed one-eighth of an inch square. The patient volunteered that he was subject to chilblains of the ears, and that he had considered this to be the result of one. He stated that various treatments, including the galvano-cautery, had been tried without benefit. A small wedge-shaped piece to include the growth was removed, and a collodion-wool dressing applied.

The report of the Clinical Research Association wa as follows :—

“ The section of skin shows epithelial processes growin down into the subjacent connective tissue ; in each cas where this occurs it is seen that the basement membrane i lacking at the point of extension. One process is branche and is spreading laterally, associated there are well-marke areas of round-cell inflammation. The condition is to b regarded as one of early malignancy.”

A letter from Dr. C. D., dated Dec. 20th, 1923 says, in reply to inquiries :—

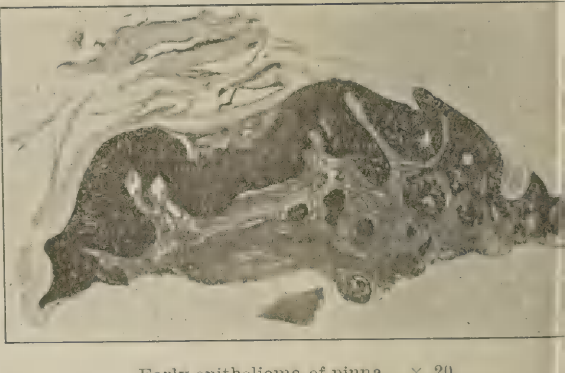
“ I still have my ear intact and no sign whatever of malignant growth. Both ears are ‘ delicate ’ and subject t frost-bites and chilblains in winter.”

III.—E. F., 57, medical practitioner, consulted M. Y. i December, 1923, for a growth apparently similar to that o C. D. It was situated upon the edge of the fold of th helix of the right auricle opposite to “ Darwin's tubercle. It had been noted for a few weeks only, and the chief sympto complained of was pain when lying upon the right ear a night, a discomfort which was sufficient to prevent slee The scab and the abraded surface beneath it was precisel similar to that in C. D.'s case, and at once recalled it to th mind. The growth was similarly removed and a collodio dressing applied. There has been no recurrence after ove six months.

The report of Dr. H. G. Butterfield, who ha also furnished the photomicrograph in Fig. 1, is a follows :—

“ The specimen in this case consisted of a small nodule tissue, roughly lenticular in shape, which measured approx mately four millimetres in its greatest dimensions. Und the microscope the changes seen are all in connexion with th stratified squamous epithelium of the skin, which shows a the central point a deep ulceration and a complete break i the recognisable elements of the normal skin epithelium, an leaves the subjacent cartilage covered merely by connecti tissue, and above that dense amorphous material apparent keratinised. On either side of this deep ulcerated centre t epithelium shows greatly enlarged papillæ of quite irregul outline, and five or six completely detached small islands epithelial cells showing the characteristic layers of sk epithelium. The connective tissue under the epitheliu and in the neighbourhood of the detached islands of ce shows the small round-celled infiltrations characteristic inflammatory reaction. The characters of the specimen as whole, with the ulceration, the irregularly enlarged papil extending into the subcutaneous connective tissue, and t detached islets of cells growing there, point to the conclusi that the condition is an instance of a very early epithelio of the pinna. The accompanying low-power photomic graph (Fig. 1) gives an accurate general idea of the relati ships of the different tissues included in the specimen. It taken from a point away from the centre, since in the para sections it was impossible to get the section flat enough a photograph owing to the presence of tissues of vary consistence, and the specimen was so small that the appli tion of the freezing process would have risked its be spoilt.”

FIG. 1.



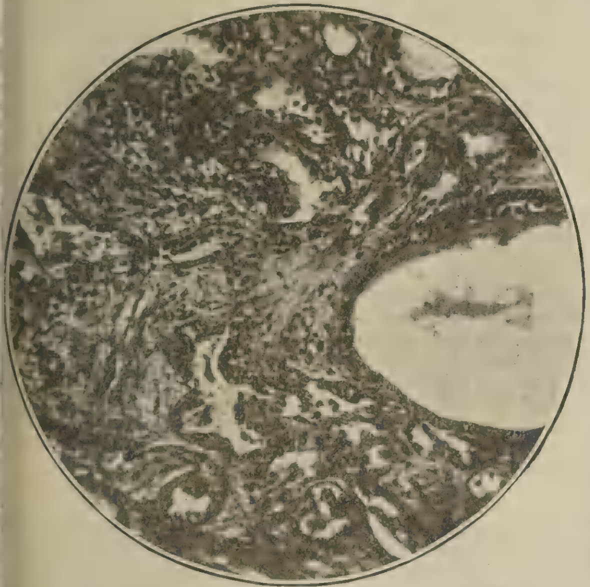
Early epithelioma of pinna. × 20.

The above three cases are characteristic of t very low malignancy of epitheliomata of the exter ear. In our opinion, the malignant growths whi commence apparently at the inner end of the meat and are usually found in connexion with a history of discharge existing for many years, really originate from the tympanum.

IV.—The fourth case is of a different character. It is not only of interest as showing how one can be deceived in the examination of a growth in the meatus, but it is remarkable for its rarity. We have hitherto met with no growth originating in the ceruminous glands.

Miss E. F., aged 45, consulted M. Y. in April, 1919, for gradually increasing deafness in the right ear. She had already consulted a general surgeon, who had informed her that she had a "bony growth" in the passage. On examination, the meatus was found to be occluded by what appeared to be an ivory exostosis. It was smooth, very hard, and apparently immovable when investigated with a probe. As she was averse to operation and there were no symptoms beyond the deafness, inaction was advised. She returned in November, 1923, complaining of increased sense of obstruction, slight occasional pain, headache, buzzing, vertigo, and nausea. The exostosis was as hard as ever, but seemed to be a little smaller and very slightly movable. It was suspected that it might be a pedunculated exostosis and removal suggested. The operation was agreed to and performed in December, 1923. A stout wire snare brought it away remarkably easily. The attachment was by a moderately broad base to the superior posterior meatal wall at the junction of the cartilaginous and bony portions. The ear was packed, bleeding being very slight. The patient was seen again in March, 1924, and the meatus was found to be perfectly healed and without any sign of recurrence. Indeed, one could not recognise any indication of the spot from which the neoplasm had been removed. The membrana tympani was a little thickened but of normal inclination, and the hearing for the whisper was 15 feet for either ear.

FIG. 2.



Tumour of external auditory meatus. × 120.

The growth was bisected with difficulty with a scalpel, and the cut surface appeared to be that of a dense fibroma. It was handed to Dr. Butterfield for microscopic examination, and the following is his report :—

"The specimen as received for examination consisted of a plaque of dense tissue removed from the surface of the external auditory meatus. It was pale in colour, distinctly hard, and measured approximately half an inch in diameter with a thickness of an eighth of an inch. This was embedded in paraffin through carbon bisulphide, and sections cut in the usual manner at right angles to the skin surface. The stratified squamous epithelium shows under the microscope no break in the continuity of its surface and no changes in the character of its constituent cells. Its outline on the deep surface is clear and definite, and immediately under it is a layer of dense fully-formed connective tissue showing here and there collections of small round cells. The whole of the remainder of the tissue consists of an irregular meshwork of dense fully-formed connective tissue fibres containing in its spaces cells of a totally different character, which vary in their arrangement from small solid masses to irregular tubular glands lined with a layer of cells varying in thickness. These cells show nothing in their appearance suggestive of a connective tissue origin, and their demarcation from the strands of connective tissue in which they are embedded is clear and well defined. They show a tendency to stain with alkaline rather than with acid dyes, and the nucleoli are hardly differentiated at all from the body of the nucleus. The blood-vessels seen have all a quite definite structure, and there are nowhere any signs of the tumour cells themselves acting as the walls of blood spaces.

The sections under a moderate magnification give an impression of a general resemblance to a rodent ulcer without the density and regular staining which characterise that condition, while the appearance and arrangement of the cells suggest very strongly that their origin is from the ceruminous glands of the external auditory meatus. The photomicrograph (Fig. 2) shows a characteristic portion of the mass of the tumour."

BAYER "G. 1919" IN THE TREATMENT OF FILARIASIS.

By GEORGE C. LOW, M.D., C.M. EDIN.,
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SCHOOL OF TROPICAL MEDICINE;

AND

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THE treatment of filariasis is still in an unsatisfactory condition. Several papers on the subject, dealing with the exhibition of drugs, such as antimony tartrate, arsenic, emetine, &c., in such cases have already been published by one of us[1] (G. C. L.). So far no drug has given satisfactory results.

The success which followed the treatment of trypanosomiasis with the substance known as Bayer "205" inspired the hope that a new preparation, known as Bayer "G. 1919," manufactured by the same company and recommended as effective in filariasis, might lead to equally satisfactory results. Through the kindness of Dr. P. H. Manson-Bahr a supply of this drug was obtained, and a suitable case of filariasis being under our care at the time, we decided to give the new preparation a thorough trial.

Bayer "G. 1919" is a coarsely granular powder. It is easily soluble in water or physiological salt solution, but the solution must not be kept for more than 24 hours. It is stated to be effective against syphilis, but is not as potent as salvarsan. Administration is by intravenous methods, and the amount recommended for each injection is 0·5 g. dissolved in 5 c.cm. of sterile distilled water. One injection may be given weekly for ten weeks—e.g., a total of 5 g. in all. If given in larger doses nephritis and dermatitis may be caused, therefore it is not advisable to exceed the dose of 0·5 g.

Two Recorded Cases.

Two cases are on record in which the drug has been given.

CASE 1.—A patient with an infection of *Filaria loa*, in February, 1922, developed neuritic pains subsequently to the exhibition of the drug, but after-treatment is reported to have had no further symptoms of the disease.

CASE 2.—A lady with "wandering filariæ and embryos in her blood." After treatment no more microfilariæ were noted. Later she suffered from jaundice, but this was not definitely attributed to the drug.

In the trial of a new preparation one cannot too fully emphasise the importance of conducting prolonged examinations, hence on this occasion we followed our usual custom of examining measured quantities of the blood before, during, and after treatment to demonstrate what effect, if any, the drug had upon the embryos, which would, of course, disappear in the event of the adults being killed. We believe that this is the only way to determine the efficacy or otherwise of the substance undergoing the test.

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[1] THE LANCET, 1920, ii., 551; 1921, i., 221.

The Selected Case.

The details of the case selected for treatment were as follows:—

History.—A. R., 42, Indian native, born in Calcutta, where he lived till going to sea ten years ago. Has sailed a lot between India and the China Coast. Last voyage from Bombay to England.

Previous Illnesses.—Syphilis eight years ago; no history of malaria or dysentery.

Present Illness.—Patient quite well on leaving Bombay, but after a fortnight at sea a pyrexial attack developed which lasted about three days. Since that date some fever at night and pain after micturition.

Examination.—There was little or nothing to make out in the patient's physical examination. A few enlarged glands on left side of neck. Some bronchitis present. Systolic murmur at apex of heart. Abdomen: spleen and liver not enlarged. Glands in both groins enlarged and shotty. Scrotum enlarged, lymphatics on both sides varicose. Slight hydrocele on left side with enlargement of left testis. C.N.S. nothing abnormal.

Blood.—Red corpuscles, 4,900,000; white corpuscles, 9000; Hb 100 per cent. Differential: P.M.N. 77 per cent.; L.M., 10 per cent.; L., 11 per cent.; E., 2 per cent. Night blood: Many embryos of *Filaria bancrofti* present. No malarial parasites; Wassermann reaction negative.

Fæces.—No ova, no protozoa.

Urine.—Sp. gr. 1018, alkaline, no sugar; albumin, a trace; phosphates present; no blood; a few pus cells; no embryonic filariæ.

Sputum.—No tubercle bacilli.

Filarial Condition.—Hydrocele and enlarged testis very likely filarial, as also the dilated lymphatics of scrotum.

After the first few days in hospital the chest condition improved; the pain on micturition disappeared, and the urine became free from albumin and pus cells, remaining so up to the date of commencing treatment.

As the case presented such a heavy filarial infection, as evidenced by the numerous embryos in the blood, it was resolved to carry out an accurate analysis of those, both before, during, and after the administration of the drug.

The test was started on May 23rd, 1924, and continued without intermission until August 11th, a period of 11 weeks and 3 days, 20 c.mm. of blood being taken at 11.55 each night, and the number of embryonic filariæ in this amount counted on the following morning. Weekly injections of the drug were given, the injection being given between 2 and 3 P.M. Previous experiences have shown that for certain unknown reasons the number of the embryos in the blood varies from time to time. They may almost completely disappear for a period, quite irrespective of treatment, and it is well known that an attack of lymphangitis may cause their complete disappearance from the peripheral circulation, with no subsequent return.

Account of the Test.

All the injections were well borne with the exception of that on June 18th. This injection, the fourth of the series, was followed in one hour by a rise of temperature to 100° F., with a slight rigor; pulse 112. By night the temperature had again fallen to normal. On no other occasion did those symptoms recur. With two exceptions the range of variation of the temperature was from 97° to 99° during the period of the trial, the rise taking place in the evening. The first exception was that mentioned above, when the rigor occurred. The second was on July 12th, when at 10 A.M. it reached 100°; pulse 96. No factor to account for this could be found. An injection had been given the previous day, but it had been well borne.

The infection was a heavy one. Before treatment was begun the average number of embryos in the 20 c.mm. of blood taken each night was over 230. The usual variations in the number occurred from time to time, sometimes the rise or fall on successive nights was extreme, as on May 28th–29th, 264 to 136; July 11th–12th, 200 to 75; July 9th–10th, 100 to 215; and August 2nd–3rd, 88 to 192. The second night (May 29th) after the first injection the first marked fall appeared. This, though it raised hopes of success at the time, did not occur again, but on the contrary the variations after subsequent injections always remained small, some even showing an upward tendency.

It was observed that during the time of treatment the average number of embryos per night was less than that of the short period preceding the first dose of the drug. No steady diminution took place, however, such as would have been expected were the drug acting in a beneficial manner and killing the adults; but it is noticeable that even after the prescribed course had been completed the counts for August 3rd and 4th showed a marked rise again, the figures being 192 and 172 respectively.

As the drug had been stated to cause nephritis and dermatitis a watch was kept upon the condition of the skin and kidneys. No symptoms nor signs of dermatitis appeared. On June 23rd a slight trace of albumin and a few pus cells appeared. The trace of albumin persisted till the termination of treatment, while the pus disappeared almost at once. No casts were observed at any time. The kidneys, therefore, cannot be said to have been unduly affected.

During the week preceding the last injection the patient complained of slight dizziness, some soreness of the mouth, and anorexia. A few small, whitish, stomatitic patches appeared on the buccal mucosa, but none of these symptoms persisted more than a few days. A steady diminution in weight to the extent of 4 lb. in all was manifest during the final period of treatment, but on its conclusion the patient's general condition was good, and he felt in better health than on admission to hospital.

Conclusions.

In conclusion, it will be seen that the drug has failed to justify the claim of its producers that it has a beneficial effect in cases of filariasis (*F. bancrofti* infection), and the hope that it would prove as effectual in this sphere as Bayer "205" in trypanosomiasis has yet to be demonstrated. The improvement noticed in the patient's general condition was observed before the test was commenced and was probably due to the diet, rest, and care received in hospital.

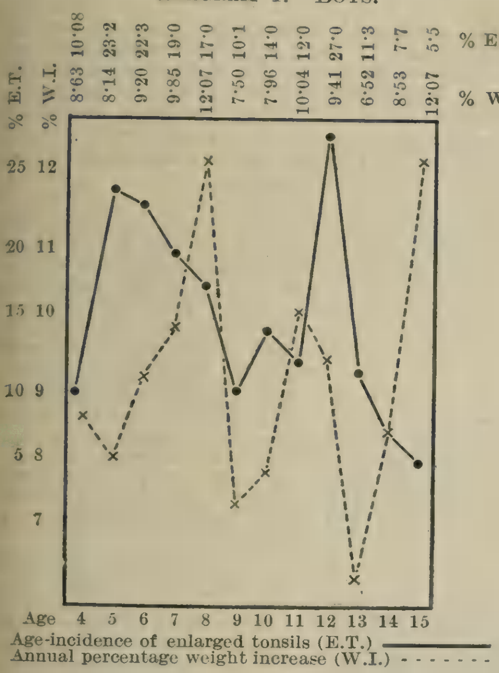
SUGGESTIONS ON THE ÆTIOLOGY OF HYPERTROPHY OF THE TONSILS.

By H. LESLIE CRONK, M.D., D.P.H. Camb.,
ASSISTANT SCHOOL MEDICAL OFFICER, CORNWALL.

Henoch,[1] in 1889, recognised that the cause of hypertrophy of the tonsil in children was obscure. He says: "As the result of the frequent occurrence of these attacks of inflammation, the tonsils may in time become hypertrophied. As a rule, however, I have seen this hypertrophy in children who had not suffered at all, or, at least, very seldom, from sore throat. I have also been able to ascertain by definite symptoms the presence of scrofula as a predisposing cause only in a few of the cases, although its presence is often assumed without sufficient reason." Garrod, Thursfield, and Batten[2] state that the cause of enlargement of the tonsil is the same as that of adenoids; with regard to the latter they say: "At present the trend of opinion is in favour of the hypothesis that the enlargement of the lymphoid follicles of the naso-pharynx is a response to infection." Medical opinion has thus not progressed very far in this matter since Henoch wrote.

This view of the inflammatory origin of the enlargement of the tonsils and adenoids has, in my opinion, been the cause of many needless operations. Lately there has been some reaction from the view that hypertrophy was sufficient reason for enucleation of the tonsil; it has been pointed out that the tonsil as, in all probability, some function, although bscure, in the bodily economy, and also that hyper- rophy is not an unequivocal sign of disease. The ttitude of hostility towards the tonsil, now happily essening, has, I think, its origin in a limited con- eption of its functions, which, from its structure nd its situation, appear to be those of a lymphatic land so situated that it may entrap organisms in e oral cavity. It has been forgotten that to do s duty it has not only to destroy organisms, and so id in producing immunising bodies, but also to eep up the supply of lymphocytes in the blood. It in this last, so obvious but so neglected, function at the reason for hypertrophy lies.

DIAGRAM 1.—BOYS.

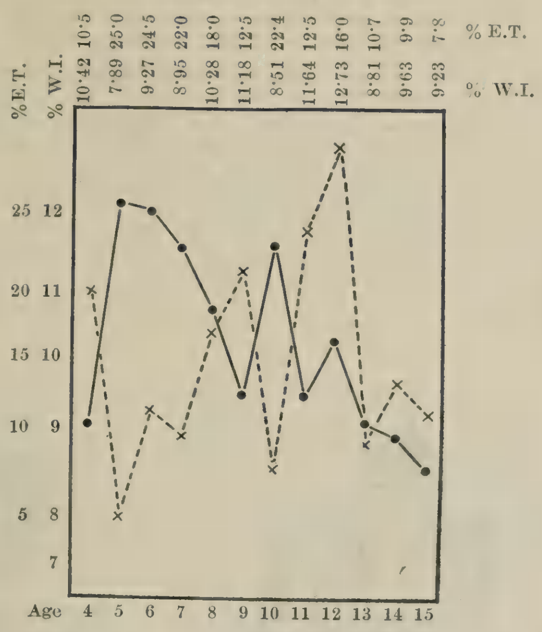


In examining school-children I have repeatedly oticed that enlarged tonsils are more common at me ages than at others, and that many children ith such enlargement are the picture of health, and e even better nourished than the average child. uch children frequently show no pathological largement of the tonsillar lymphatic glands, and their mouths and history present no cause for ypertrophy on the infection theory. Other children gain, equally fat and healthy, will show evidence glandular enlargement elsewhere without hyper- ophy of the tonsil. These cases seem to me to be arallel to one another, the only difference being in e situation of the lymphatic tissue which becomes ypertrophied.

Hypertrophy of the tonsil has been shown to be ue to excessive formation of lymphocytes in the gan, and the point at issue is the reason for the creased supply of these cells. They are not phago- tes, and the theory that they produce an anti- acterial substance or antitoxin has no experimental idence in its favour. Our knowledge of the function these cells is not complete, but from recent searches by Cramer[3] and others it appears that they e of great importance in nutrition. Cramer holds at lack of vitamin B causes its symptoms of inani- on by its atrophic action on the lymphoid tissue the intestine, while Carrell[4] has shown that fixed ssue cells cannot absorb nutriment for their growth nless lymphocytes are present so to alter the sub- ances carried by the serum that they can be utilised y the tissues. If this is true, in periods of growth, mphocytes must be in abundance, and for their roduction lymphatic tissue must proliferate.

Now growth is not a linear function of age, but takes place more rapidly at some ages than at others. Again, the presence of tonsillar hypertrophy is also not a linear function of age. The growth-rate[5] at various ages from 3 to 15 years has been charted in the accompanying diagrams, on which is also represented the age-incidence of hypertrophy of the tonsil.[6] From these diagrams it is seen that the two main maxima of increase of weight occur two to three years after a maximal incidence of tonsil hypertrophy; this occurs in both sexes, although the curves of growth are not identical.

DIAGRAM 2.—GIRLS.



When the rise of tonsil incidence is small (as at 10 years of age in boys and 12 years in girls) it is followed by a small rise in weight increase at a short interval; when the rise is greater (as at 10 years of age in girls and 12 in boys) so is the rise in weight increase higher and the interval longer. There seems more than mere coincidence in this, and the suggestion is obvious that increase of lymphoid tissue is a necessary preliminary to growth in weight, and that the tonsils in this matter hypertrophy simply in order to take their share in the production of lymphocytes and not as a result of infection. If excised they will always show the presence of organisms in the crypts, but so will any tonsil after the first few days of life, and such invasion does not constitute infection. Growth is a primitive function and is correlated with the primitive function of the tonsil, which is that of a producer of lymphocytes. I do not say that many hypertrophied tonsils are not diseased; it would be reasonable even to suppose that rapidly growing organs should be more susceptible to bacterial attack, but I believe that all are not diseased. If this is admitted the cause of the hypertrophy must be sought elsewhere, and the evidence points to some connexion with the influences, at present obscure, determining the periodic spurts in the formation of new tissue.

References.

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2. Garrod, A. E., Thursfield, H. T., and Batten, F.E.: Diseases of Children.
3. Cramer, W., Drew, A. H., and Mottram, J. C.: THE LANCET, 1921, ii, 1204.
4. Carrell, A.: Jour. Amer. Med. Assoc., Jan. 26th, 1924, p. 256.
5. Greenwood, A.: The Health and Physique of School Children, 1913.
6. Ann. Rep., Chief M.O., Board of Education, 1909, p. 42.

Clinical and Laboratory Notes.

A CASE OF AORTIC ANEURYSM.

By C. Burgoyne Pasley, F.R.C.S. Irel.,
CHIEF SURGEON, PERAK, FEDERATED MALAY STATES.

The photographs which accompany this note illustrate a very remarkable case which came under my notice in the Ipoh Hospital, Perak.

The patient was a very debilitated Chinaman, who furnished a history of a gradually enlarging tumour with considerable pain. There was also a very definite history of long-standing and untreated syphilis. The Wassermann blood-test was positive, and there was marked evidence of atheroma. The enormous tumour showed marked expansile pulsation, on auscultation over it a very loud bruit was audible, and puncture with a needle proved the sac to contain blood. On these findings the diagnosis, which was confirmed post mortem, was made.

Fig. 1.

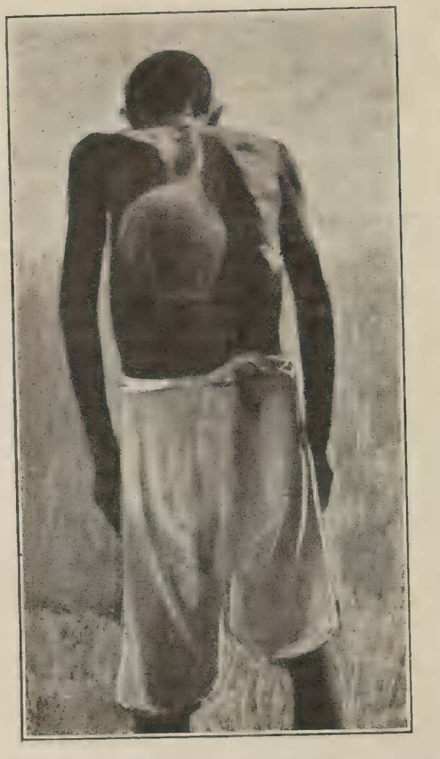
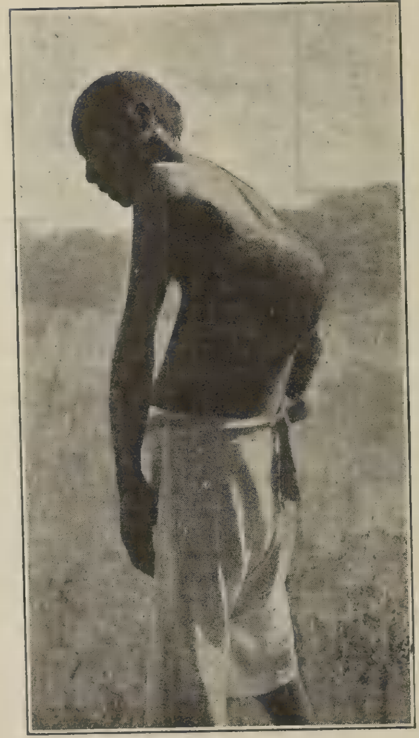


Fig. 2.



Reproductions of photographs of a case of aortic aneurysm, showing dorsal view and lateral view of tumour.

Aneurysm is quite a common disease among the Chinese mining coolies, the vast majority of whom suffer from untreated syphilis. Their avocation, which entails the carrying of heavy burdens, is no doubt an important contributory cause of aneurysm. I have seen and operated on many such cases. A remarkable case of the kind operated on by me in Kuala Lumpur in 1917 was that of an enormous aneurysm of the left common carotid. I tied the artery at the arch of the aorta by opening up the anterior mediastinum. The patient survived for eight days, but died from œdema of the brain.

A CASE OF UVEO-PAROTITIC PARALYSIS.

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AND

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The syndrome iridocyclitis-parotitis-polyneuritis i sufficiently rare to justify the publication of anothe case. The recognition of this disease is attributed t Heerfordt,[1] and other cases have been recorded b Mackay,[2] Feiling and Viner, Daireaux and Pechin Brewerton and Dopter.[3] The name "Uveo-parotiti paralysis" we owe to Macbride,[4] who published a ver complete account of one case.

Clinical Note.

The present case occurred in a married woman of 5 who was admitted to Southmead Hospital, March 18th las complaining of arthritis of her knees and intense dryness the mouth. Two years ago the right side of the face bega to swell but caused her no pain. Dryness of the mout appeared and became muc worse three months later, whe the left side commenced to swel For the past six months sh has suffered from soreness her eyes, photophobia, lacryma tion, and mistiness of visio She has lost weight during t past two years. Her previo illnesses included an operatio for vaginal hæmorrhage pe formed when she was 25, in whi both ovaries were removed. S had a "nervous breakdow in 1921. Her family histo revealed nothing of importan except that a sister died diabetes and a brother of phthis Patient was a thin, anæm woman, looking older than h age. Her face was somewh asymmetrical and there w marked ptosis with so marginal blepharitis. There w no mental or temperament abnormality.

Cranial Nerves.—The fields vision were full, but corne opacities did not permit a thorough ophthalmosco examination. The pupils we small and equal: circular shape, central in position, b there was some slight irreg larity in the edges. Reacti to light was sluggish, and the was no reaction on accomm dation. The eye movemen were normal; ptosis was prese especially in the right e Jaw movements and fac sensibility were normal. Th was some facial asymmet the left naso-labial fold be more prominent than t right. Voluntary and emotio movements were full a equal. Taste was unimpair Hearing was somewhat po bone conduction being bet than air. Weber's test was normal. There was no tinnit Patient complained of some dysphagia. The eleventh a twelfth nerves were normal.

Motor System.—The musculature was everywhere poo developed, and there was distinct atrophy, localised to t interossei, the dorsal thumb muscles, and the flexor bre pollicis on both sides. No fibrillation was noted. Mo power was feeble in the hands and extensors of the elbo Tone was normal; coördination good. No involunta movements. In the legs all movements were present but somewhat feeble.

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[1] Heerfordt, C. F.: Archiv für Ophthal., 1909, lxx., 254.
[2] Mackay, G.: Trans. Ophthal. Soc., 1917, xxxvii., 208.
[3] Dopter: Gaz. des hôp., 1904, lxxvii., 857.
[4] Macbride, H. J.: Jour. Neurol. and Psychopathol., 19 vi., 242.

Sensory System.—Responses to light touch, pin-prick, heat and cold, passive movements and alterations in position were everywhere normal. There was no appreciation, however, of a vibrating tuning-fork applied to the ankles.

Reflexes.—All tendon-jerks were present. No abdominal reflexes were obtained; plantar stimulation evoked a flexor response.

Trophic.—There was an operation scar over the abdomen and a mark due to an old electric-battery burn. The knees showed some arthritic changes. No cutaneous eruption was found.

Lungs.—At both apices the breath sounds were harsh and vocal resonance was increased.

Parotid.—There was a visible enlargement of both parotid glands, especially the right, involving all lobes. They were hard, non-fluctuating, and painless on palpation. The overlying skin was not involved. No other lymphatic or salivary glands were enlarged. Spleen and liver were not palpable.

Eyes.—Both eyes, especially the right, showed some mucopurulent conjunctival exudate. The irides were muddy and the pupillary margins a little irregular. Both corneæ were hazy. Pupillary reaction was lost on accommodation, and was sluggish to light. On dilating the pupils a circle of pigment was seen in both eyes on the anterior lens capsule at the site of former posterior synechiæ. Photophobia and blepharitis were present.

Teeth had all been extracted over three years ago.

Examination of a blood-film showed a normal leucocyte count, the red cells numbering 3,500,000. Wassermann reaction was negative in the serum.

Discussion.

It appears that the symptoms in uveo-parotitic paralysis may appear in any order; the facial muscles are the most usually affected, but in this case there was but little impairment of the seventh nerve. Dysphagia occurred in this case as in those reported by Macbride and Heerfordt, though this symptom might possibly be due to the dryness of the mouth. Macbride called attention to weekly bouts of pyrexia as in Hodgkin's disease: the present case showed a constant evening rise of temperature up to 100° to 100·5° F.

Points of special interest in this case are: (1) the preponderance of the right-sided manifestations; (2) the slight involvement of the cranial nerves and the mildness of all subjective phenomena; (3) the absence of any rash, as reported by Feiling, Viner, and Brewerton; (4) the association of uveo-parotitic paralysis with absence of the ovaries.

The nature of this disease is almost certainly that of a chronic infection, although the exact ætiology is unknown. Syphilis appears to take no part in the pathogenesis, neither does the previous occurrence of mumps. In our case the pulmonary signs, the pyrexia, and the family history suggest that tubercle might be the causative agent, but the coexistence of a septic arthritis rather obscures the picture.

Medical Societies.

MEDICO-LEGAL SOCIETY.

A MEETING of this Society was held at 11, Chandos-street, in the rooms of the Medical Society of London, on Oct. 21st, Lord Justice ATKIN, the President, being in the chair.

Prof. HARVEY LITTLEJOHN read a communication on

Judicial Hanging as a Humane Method of Execution.

He said that he had recently been able to examine ully six cases of execution, and he thought that the details were of enough scientific interest to be worth recording. He then described in detail the procedure adopted and the post-mortem findings in these cases. The drop used varied from 6 feet to 7¼ feet, and n every case death appeared to be instantaneous. n five cases no movements at all were perceptible; n one case a few convulsive movements of the houlders were seen. In most cases the heart continued to beat vigorously for about 10 minutes, giving a strong radial pulse of 80–150 beats per minute at first, but later becoming irregular and topping altogether after 15 to 20 minutes. In one ase the heart appeared to stop immediately. The odies were allowed to hang for one hour before eing taken down. Post-mortem examination showed onsiderable injury to the muscles of the neck, and n five cases dislocation of the spinal column by eparation between the second and third cervical ertebræ. In one case the body of the third vertebra was fractured and dislocation occurred lower down. n some cases the spinal cord and membranes were orn across; in others they appeared intact. After eference to the older and less humane method of anging by strangulation without a drop, and to the methods used in other countries, Prof. Littlejohn oncluded by saying that in his opinion the modern method used in this country was the most humane f all. It was performed very expeditiously (the whole proceedings only taking a few seconds), was ainless, and undoubtedly caused instant death.

Sir BERNARD SPILSBURY described a recent case of udicial hanging in which the post-mortem findings osely resembled those described by Prof. Littlejohn xcept that the spinal column was dislocated between he sixth and seventh cervical vertebræ, as well as between the second and third. The second dislocation might have occurred on a rebound from the first drop. Death appeared to be instantaneous.

Sir WILLIAM WILLCOX agreed with Prof. Littlejohn that judicial hanging was a painless form of death and that the victim immediately became quite unconscious even if convulsive movements were shown. He considered it the best method of execution, and more reliable than electrocution.

Earl RUSSELL considered that a better method, giving less unpleasant anticipation for the victim, and a less disagreeable spectacle for the onlookers, would be the introduction of coal gas into the prisoner's cell at night during sleep. This would be painless and not disagreeable.

Dr. G. ROCHE LYNCH said he thought it unwise to leave the decision as to the length of drop needed to the executioner.

Dr. JAMES SCOTT said that he had seen many executions, and fully agreed with Prof. Littlejohn that hanging was a quick and sure method of execution with no evidence of suffering. The length of drop was now regulated according to tables drawn up by a committee which had investigated the subject. He considered the methods used in other countries less satisfactory.

The PRESIDENT closed the discussion by remarking that he thought it most important that the public should feel assured that judicial hanging was painless, and that complete unconsciousness, if not death itself, was instantaneous. He thought that provision by the authorities for post-mortem examination by competent persons, with publication of the results, would allay a good deal of public unrest. He considered Lord Russell's proposal objectionable, because if the prisoner did not know on which night he was to be poisoned he would lie awake many nights expecting death. If, however, he was forewarned, he would certainly not sleep on the given night, but would be slowly suffocated while conscious.

Prof. LITTLEJOHN, in reply to a question, said that even the thickest neck could be overcome by suitably lengthening the drop, and that, as carried out nowadays, no accidents occurred.

Prof. LITTLEJOHN then read a paper entitled

What is a Fatal Dose of Strychnine?

describing cases of fatal poisoning from known small doses of strychnine.

CASE 1.—A woman of 25 swallowed a powder containing 1 gr. of strychnine. This powder had been dispensed by a chemist who kept his strychnine bottle next a bottle of exalgin and had used strychnine in mistake for exalgin.

The powder was swallowed with water. After five minutes the patient felt sick and unwell, and was helped to bed. After 15 minutes she complained of pain at her heart, and passed into a general convulsion lasting one and a half minutes. She then expressed a fear of death, and 30 minutes after taking the powder died in a convulsion. Post mortem strychnine could be detected in the blood and in the stomach, but not in the stomach contents.

Case 2.—A woman of 36 consulted a doctor, who prescribed for her a mixture of liq. arsenicalis ½ oz., and liq. strychninæ hydrochlorici ½ oz., of which six drops were to be taken thrice daily. The patient finished the liquid in the bottle without ill-effect, but later on, wanting a further dose, she noticed a white deposit in the bottle, added some water, and drank the contents. Two hours and 20 minutes later she died after several convulsions. On analysis the remaining contents of the bottle were found to contain 4 mg. of strychnine. The total amount originally present was $2^1/_5$ gr., but it is uncertain how much of this was swallowed in the fatal dose.

The case was an illustration of the danger of prescribing powerful drugs in drop form instead of in dilute solution, and also showed an inexcusable error of the prescriber, and especially of the chemist, in dispensing two incompatible drugs. It was well known that alkaloids are precipitated by alkalies from solutions of their salts, and in this case strychnine was precipitated from its hydrochloride solution by the alkaline liq. arsenicalis. When the patient added water and shook the bottle she formed a suspension of this precipitated strychnine which proved fatal.

Case 3.—A naval officer of 25 wanted a "pick-me-up" and was given 1 drachm of liq. strychninæ hydrochlorici by a ship's doctor who misread the dose printed in his Pharmacopœia. After 20 minutes the officer laughingly complained, "That was strong stuff. I can't walk properly now." The doctor became suspicious, discovered his error, and gave the officer salt and water and tartar emetic, which produced some vomiting. In spite of this, and of artificial respiration, the officer died from respiratory failure three-quarters of an hour after taking the poison and after only one convulsion. One drachm of liq. strychninæ hydrochlorici contains 0·55 gr. of strychnine.

Case 4.—A boy, aged 3½, was found playing with some tabloids of Easton's syrup. After an interval he had convulsive seizures and died on arrival at hospital not more than one and a half hours after taking the tabloids. As far as could be ascertained, he had taken two or possibly three tabloids, equal to a total of 1/32 or 1/20 gr. of strychnine.

Case 5.—A child, 18 months old, was found eating laxative pills which the mother kept on a table at her bedside. The child was thought to have eaten nine pills, each containing strychnine gr 1/60, belladonna gr. 1/8, and aloin gr. 1/5. Convulsions began within 15 minutes, and in spite of medical treatment by 1/20 gr. apomorphine and later chloroform, death occurred 2 hours 20 minutes after taking the pills. Nine pills would contain 1/7 gr. of strychnine.

Prof. Littlejohn pointed out that in the recorded cases of strychnine poisoning the fatal dose varied considerably according to the constitution of the individual and the circumstances of the administration. Recovery had been recorded from doses up to 40 gr., while, on the other hand, ¼ gr. had been said to prove fatal to an adult. This latter case was admittedly uncertain, and the next smallest fatal dose recorded was ½ gr., which was said to have killed a Dr. Warner in 20 minutes. Here, again, the evidence as to dosage was by no means definite, but the case of the naval lieutenant recorded above (0·55 gr.) afforded definite corroboration of the fatal dose of ½ to 2 gr. usually given in books. Apart from the question of fatal dose these cases provided striking illustrations of ways in which accidental strychnine poisoning might occur, and of the care needed in prescribing the drug, or allowing it to come within the reach of children.

Sir William Willcox pointed out that strychnine was one of the most stable of poisonous alkaloids, and mentioned that in the viscera of a fox poisoned 20 years ago and since kept in his laboratory, strychnine could still be detected with ease. The fatal dose of snrychnine appeared to be proportional to body-weight atd hence doses which were medicinal for an adult might be fatal to a child. Both the speed of action and the fatal dose probably depended on the method of administration, solutions being quicker and more deadly than the solid form, since their absorption was more rapid and the toxic effects were probably proportional to the concentration in the blood at any instant. Idiosyncrasy undoubtedly occurred with this drug, and he had seen cases in which adults taking 1 drachm of Easton's syrup as a tonic ($\frac{1}{32}$ gr. strychnine) three times a day suffered from spasms in the legs and other symptoms, and were really on the verge of poisoning. Dixon Mann had stated that if excretion in the urine was slow toxic effects were more marked, and Sir William Willcox thought that in such cases the fatal dose might be considerably less than ½ gr., especially if taken in solution on an empty stomach.

Dr. C. Owen Fowler pointed out a possible danger in the dispensing of strychnine due to its tendency to crystallise out round the stoppers of bottles. Such crystals falling off as the solution was poured out might easily lead to excess of the drug in a prescription.

Mr. John Webster quoted a case of tolerance to the drug in which a woman took increasing doses of strychnine for two years before her death. In the last few weeks these doses rose to from $\frac{1}{10}$ to $\frac{2}{5}$ gr. per day without the appearance of symptoms, perhaps partly owing to the presence of paraldehyde in the prescription. Post-mortem analysis showed only very faint traces of strychnine in the liver and stomach, too small to estimate, although the large doses were taken up to death.

Dr. W. B. Purchase pointed out that in calculating fatal doses allowance should be made for such amount of the poison as was vomited, and asked if these amounts had been subtracted in the cases quoted.

The President emphasised the importance of the question from a medico-legal point of view, and pointed out that the discovery that ½ gr. had killed one adult did not prove that a similar dose would kil any given individual, and did not necessarily show the minimum fatal dose or the maximum dose that could be tolerated. Owing to the importance of tolerance as well as idiosyncrasy great accuracy was needed in discussing the subject, and all light on it was helpful.

Prof. Littlejohn, in reply, said that idiosyncrasy was unquestionably shown with all drugs. Fo instance, with strychnine paralysed persons migh need very large doses. Hence the individual must always be considered. Tolerance, however, was a different question, and, in his opinion. no habi tolerance could be formed to strychnine, howeve much was taken. In answer to the constant question What is the fatal dose of strychnine ? we now had a really authentic record of ½ gr. causing death in a healthy adult.

LIVERPOOL MEDICAL INSTITUTION.

Encephalitis Lethargica.

A meeting was held on Oct. 23rd, when Dr. Gordo Gullan read a paper on a Clinical Study of 62 Case of Encephalitis Lethargica. He began with a historica note of the disease, and described various types an cases. Onset, special symptoms, and syndrome results with sequelæ, diagnosis, prognosis, and treat ment were also set forth.

Dr. Henry Cohen expressed surprise that pain wa present in only one of the 62 cases. In his experienc severe pain, probably of thalamic origin, was n uncommon. Pain frequently preceded the onset myoclonus and had been mistaken for an acut abdominal lesion in some recorded cases. Extensiv classification was to be deprecated owing to th innumerable varieties encountered. Walsh's classifica tion, in which the symptoms and signs were regarde as (*a*) evidence of general infection and toxæmi (*b*) evidence of exaltation and depression of the nervo system, either general or local, was suitable except tha thereby the common manifestations—for example, the oculo-lethargic and the myoclonic types—might be insufficiently emphasised. In the differential diagnosis, meningitis—tuberculous and syphilitic—could in the majority of cases be excluded by examination of the cerebro-spinal fluid. Difficulty in diagnosis occasionally occurred in cases of (i.) sinusitis, especially frontal sinusitis associated with brain abscess, (ii.) infective endocarditis of the cerebral type, (iii.) uræmia especially associated with myoclonus, and (iv.) post-diphtheritic paralysis. Papillœdema was so rare as to suggest intracranial neoplasm or abscess, though undoubted fundus change occurred in epidemic encephalitis—slight in degree and rarely. Dr. Cohen considered that the figure given by Dr. Gullan for complete recovery (50 per cent.) was too high. Treatment of the sequelæ was disappointing, though hyoscine hydrobromide in the Parkinsonian syndrome, luminal in the myoclonic types with pain, and Lust's treatment in cases presenting reversal of sleep rhythm were useful in many cases. Pitcairn's method and magnesium sulphate injections were disappointing.

Mr. C. O. DAVIES read a note on Pharyngeal Diverticula with an account of two cases recently treated at the Liverpool Royal Infirmary.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on Oct. 15th, when Dr. R. M. F. PICKEN, M.O.H., Cardiff, spoke on

Present-day Health Tendencies in Cardiff.

After referring to the importance of the medical profession reviewing locally from time to time the results of public health activities, Dr. Picken emphasised the important use of the statistical method of inquiry and dealt with the absence of reliable local statistics of sickness, as a result of which information in the mass was available only through death returns. The death-rate in Cardiff had fallen more rapidly than in England and Wales generally since 1851, and at the present time Cardiff was favourably placed in relation to the acute infectious diseases. So far as infant mortality was concerned, there had been a satisfactory decline which was shared in almost equal degree by all the other towns of importance. Dr. Picken considered at some length the various explanations which had been given for this decline, and mentioned that in his opinion the continuous fall in the birth-rate was probably the most important factor. Examples were given of towns where there did not appear to be any definite correlation between a low birth-rate and a low infant mortality, but in places like Bradford and Huddersfield this might be due to special circumstances affecting the employment of married women. The fact that the decline of the infant mortality commenced 25 years after the commencement of the fall in the birth-rate was not necessarily an argument against the former being the result of the latter. The problem of tuberculosis was dealt with at some length, and it was shown that in Cardiff the death-rate from pulmonary tuberculosis, more particularly among males, was actually increasing. Various possible reasons for this were considered, and it was shown that the cause could not be found either in excessive unemployment as compared with other places or in the foreign seafaring population, who admittedly suffered heavily from tuberculosis, or in the migration of the population in such way as to ncrease the number of susceptible persons in the city. The problem remained unsolved. Having dealt briefly with the increase of cancer and the tendency for the male cancer mortality to equal the female cancer mortality-rate, some practical questions affectng the administration of public health and hospitals n Cardiff were discussed, and a plea was made for better local sickness statistics and greater use of the general practitioners' opportunities for gathering and pooling information which might solve some of the problems touched upon.

LUNACY LAW AND ADMINISTRATION.

OPENING SITTINGS OF THE ROYAL COMMISSION.

THE first meeting of the Royal Commission on Lunacy Law and Administration and Mental Disorder was held at Old Palace Yard on Tuesday, Oct. 7th. Mr. H. P. Macmillan, K.C., presided.

EVIDENCE OF THE BOARD OF CONTROL.

Sir Frederick Willis, chairman of the Board of Control; Mr. S. J. Fraser Macleod, K.C., and Dr. C. Hubert Bond, Commissioners of the Board, were the first witnesses.

Development and Duties of the Board.

Sir F. Willis said that the Board really had its inception in 1845. It was to consist of three legal members and three medical members. He attributed the state of efficiency in asylums to-day in a large measure to the work of the Board, although, of course, there had been also the growth of a right spirit all through the lunacy system. He spoke of the enlargement of the duties of the Board consequent upon the passing of the Mental Deficiency Act, 1913.

The Chairman said that the class of persons to whom the Mental Deficiency Act related were different from those with whom the Commission was concerned in that inquiry. That Act had created a separate code from the code of lunacy law and administration—a code with which that particular inquiry had nothing to do. He added that he was anxious to appreciate the principles upon which this branch of law had developed. It appeared to him to be a compromise between the liberty of the individual on the one hand and the protection of the public against abnormal individuals on the other, together with the protection of the individual himself against the consequences of his abnormality.

Sir F. Willis agreed, and said that nowadays we looked to the cure of the individual.

The Chairman said that the medical side had shown a progressive effort to improve the conditions under which those of unsound mind were treated and to aid their recovery. He asked if he might take it that the main sources of the existing law were to be found in the Lunacy Acts of 1890–91, with certain amending statutes, and asked also what other bodies or persons were concerned, in addition to the Board of Control, with persons of unsound mind.

Sir F. Willis said that the Lord Chancellor had an ancient jurisdiction which related to the person as well as to the property. Largely his powers were derived from common law. The Home Secretary, of course, had jurisdiction over criminal lunatics. The Ministry of Health had jurisdiction, not over buildings, but over persons.

The Chairman asked whether any disadvantage had arisen from the distribution of functions among these different bodies.

Sir F. Willis thought it desirable that the Board of Control should be able to go to the Minister of Health just in the same way as the Ministry of Health as a department went to the Minister. He agreed that the number of persons found insane by inquisition with whom the Lord Chancellor had to do was decreasing, and that it was a reasonable inference to draw that inquisition is less necessary now than formerly.

Sir F. Willis considered that the present method of dealing with lunatics adequately met the public interest. The categories of patients with whom the Board of Control had to deal were mainly (1) private and (2) rate-aided. In the case of a pauper the justice making the order for detention was required to see the patient. In a private case he need not do so. The places where the insane were dealt with included county and borough mental hospitals (80 per cent.); registered hospitals, where fees are charged, but not with the object of making a profit; licensed houses or private asylums, which are run for profit; naval and military hospitals; criminal lunatic asylums, Poor-law institutions; private single care, and outdoor relief. On Jan. 1st, 1924, there were in the county and borough mental hospitals 103,892 patients (45,897 males and 57,995 females); in registered hospitals, 2139; in metropolitan licensed houses, 1187; in provincial licensed houses, 1610; in naval and military hospitals, 171; in criminal lunatic asylums, 785; in Poor-law institutions, 11,323; in metropolitan hospitals provided by the M.A.B., 5266; in private single care, 417, and insane people receiving outdoor relief, 3544, making a total of 130,334. Boarded-out cases are included in the first category, because they remain on the books of asylums. With regard to licensed houses, Parliament had enacted that the number of these institutions should not exceed the number in existence in 1890. There were now 98 such institutions, including Maudsley, and there were 13 registered hospitals.

Various Safeguards.

Mr. Macleod then described the procedure of petition, and the difference of procedure in the case of a private and of a rate-aided patient. The documents relating to any patient on reaching the Board of Control were carefully scrutinised by an experienced clerk and later by a Commissioner. If they were wanting in any particular they were sent back, and if they could not be amended the order fell to the ground. There was no distinction so far as the Board's scrutiny was concerned between documents relating to private and those relating to rate-aided patients. Perhaps about 12 or 20 certificates a day were referred by the clerk to the secretary for scrutiny, though mostly on technicalities.

Dr. Bond said that it was not always possible to gather from the certificates whether the symptoms there set down were observed by the certifying doctor himself at the time of the examination, and sometimes the facts given did not necessarily indicate unsoundness of mind. The scrutiny of the Board was directed to the whole certificate, but the accent was on the paragraph relating to what was seen by the observer at the time of the examination. The forms were not always examined by a medical Commissioner, but if any purely medical point arose the legal Commissioner would call the attention of his medical colleague to it. He thought that the form could be said definitely to be successful. Doctors did not always grasp the essentials of this certification, but education in this respect was going ahead, especially since some of the medical bodies had established diplomas in psychological medicine. After admission of the patient a description of his mental and bodily condition was furnished to the Board by the medical superintendent within seven days. This was not a diagnosis, but simply a description. The reason for the differentiation between private and rate-aided patients was that in the case of the rate-aided patient, unlike, in some cases, the private patient, it was to no one's interest that he should be unnecessarily detained.

Sir F. Willis said that the real safeguard in all cases was the character and ability of the men at the head of the institutions, not any documentary evidence.

Mr. Macleod then described the system of visitation. In county and borough asylums the visitation took place once a year by two Commissioners. Licensed houses were visited twice a year by the Commissioners and registered hospitals once under statute, but in fact twice. Single-care patients were visited as often as the Board ordered, but in any case at least once a year. The statutory visit must be private, must be made by a legal and a medical Commissioner, without previous notice; many questions were asked of the officers, and every patient was spoken to. Any private patient had a right under the statute to demand a private interview; any private interview asked for by any patient was granted.

Private and Pauper Patients.

The examination of the Commissioners was continued on Wednesday, Oct. 8th.

Sir F. Willis described the procedure followed on the discharge of a private patient.

The Chairman remarked on the curious provision that a patient who had escaped from detention and remained in hiding for 14 days was free from restraint.

Sir F. Willis said that he saw no reason in this stipulation; it was probably an inheritance from the old days of lunacy administration.

The Chairman remarked that there were differences in the procedure of discharge between private and rate-aided patients, and he supposed that here again the reason was that there was no pecuniary inducement on the part of any person to retain the rate-aided patient in an institution.

Dr. Bond remarked, on the subject of medical examinations, that it was a growing practice—and in one hospital the routine practice—for the medical superintendent, on the admission of a patient, to discover the name of his family doctor, if there was one, and inform him briefly as to the facts of detention and invite him, if in the neighbourhood of the asylum, to come in and discuss the case.

Sir F. Willis said that the number of patients sent out on trial in 1922–23 from borough and county asylums was 5525, but a large number had to return to the institutions. On the question of accommodation he expressed the view that mental hospital accommodation was inadequate, and that in a short while the position would be serious, owing, not to any undue increase of insanity, but to the natural growth of population.

The Chairman thought it might be necessary to reconsider the policy which since 1890 had arrested the growth of the licensed house.

Sir F. Willis then spoke about medical certificates. He said that there were very few misdemeanours in this respect under the Act, but difficulty did arise through medical practitioners withholding certification of one of their private patients in order to avoid the stigma of detention. That was a contravention of the Act. The practice of the Board on learning of such a case would be to apply to the Lord Chancellor for an order.

The next question raised was on the provision for insane patients in workhouses. The Chairman said that the workhouse was not the proper place for the reception of patients likely to improve under treatment; if used at all it should be for chronic and hopeless cases.

Sir F. Willis said that his Board would welcome any practicable suggestion for the better use of the total accommodation.

Steps Following the Arrival of the Patient at an Institution.

Dr. Bond, at the request of one of the Commissioners, then detailed how a patient was dealt with on arrival at an institution. A preliminary physical examination was made while the persons who had brought the patient remained on the premises. The patient was put to bed for at least a week, during which time an elaborate examination was made by more than one doctor, and a report sent to the Board of Control. The examination was repeated at monthly intervals, certainly for the first three months, and probably for the first year, and later at quarterly intervals.

Sir Humphry Rolleston asked how often it happened that the second certificate, the first having been given by the family doctor, was given by an expert in mental disorder.

Dr. Bond said that in the metropolis this was very frequent, less so in other parts of the country. Dr. Bond also stated that faulty certificates were extremely few in number compared with the hundreds of thousands of proper certificates which came before the Board.

Sir David Drummond raised the question of the clinical experience of medical officers at mental hospitals, and asked whether it was necessary for such officers to have had a training in a general hospital.

Dr. Bond said that such training was recommended by the Board, though it was not made a sine qua non.

Mental hospital authorities had also been urged to appoint, in addition to their resident staff, certain consulting physicians other than mental specialists —i.e., gynæcologists, and so forth. He doubted, however, whether it would be practicable to lay down a hard-and-fast requirement for clinical experience; visiting committees even as it was did not get sufficient applications when there was a vacancy.

Allegations of Cruelty.

The Secretary of the National Society for Lunacy Reform asked permission to put certain questions, and these were put through the Chairman. The first question was how frequently the Board had to investigate cases of cruelty.

Sir F. Willis said that the Board received a great many complaints of cruelty, chiefly from the patients themselves, in the form of letters. Every case was investigated, if necessary by a sworn inquiry, but in very few instances was the complaint substantiated. In one case only in 1923 an attendant was prosecuted and fined for striking a patient, and there were very few cases, not more than half a dozen a year, in which complaints were found proved and disciplinary action other than prosecution taken. The right of an ill-treated patient to appeal to his doctor was very jealously safeguarded, and in addition to this, the patient could always write to the Board, and, as he had said, every case was investigated. He had heard it stated that some patients were too frightened to complain, but he had not known this to be substantiated. He thought that the surprise visits of the Commissioners did much to allay any uneasiness on this score, for it occasionally happened that the Commissioners on going round the wards were apprised of some case, and held an inquiry forthwith, sometimes on oath.

In answer to a question from the Chairman, Sir F. Willis said that the licensee made the appointment of heads of licensed houses; the licensee need not be a doctor, but the Act required that there must be a resident doctor, and a visiting doctor according to the number of patients. Asked whether he had any statistics of the number of persons who have been discharged from detention on the ground that they were not insane when admitted, he answered: "A very small number." He had had no experience of cases where persons not insane had been wrongly detained in asylums, and he regarded the existing machinery in the matter of certification and provisions with regard to detention as adequately safeguarding the liberty of the subject. On the other hand, if ingenuity could suggest any additional reasonable precautions the Board would not resent them. With regard to curative treatment in the hospitals themselves, the Board had responsibility only in an advisory capacity. The responsibility for the treatment of each individual case must rest with the doctor of the institution. If the Board found an institution lax in this matter they could bring pressure to bear on the medical superintendent or the local authority, but they could not insist that an extra doctor be appointed or a laboratory provided.

EVIDENCE OF THE LORD CHANCELLOR'S DEPARTMENT.

Sir Claud Schuster, Permanent Secretary to the Lord Chancellor, gave evidence with regard to the small number of patients in whom the Lord Chancellor had an interest. These were patients found insane by inquisition—a very small number—and those in whose property the Lord Chancellor had some concern. The Lord Chancellor's visitors were three in number—two medical and one legal—and they visited these lunatics at statutory intervals. Their concern was with the individuals, not with the institutions. Asked whether the Lord Chancellor's ancient jurisdiction was worth retaining, the witness said he was in doubt on that point; it depended on the constitution of the Board of Control, which should include the very highest medical experts on the subject of lunacy, as well as legal men of great eminence. The legal mind was needed to counterbalance the special point of view of the medical. On the whole, he thought that it was as well to continue the Lord Chancellor's functions, which were to some degree those of a champion of these people. He went on to complain of medical certificates, not as to their conclusion, but as to their selection and arrangement of facts leading up to those conclusions, and said that here again the legal mind was necessary to correct and counterbalance the medical.

The Rights of the Confined Patient.

At the resumed sitting on Oct. 21st Sir Claud Schuster, under the same chairmanship, expanded a reply he gave at the previous sitting when he expressed the view that a lunatic in confinement had not been and should not be given the right to demand a public inquiry as to whether he had recovered. The conferment of such a right would be unfortunate. Lunacy was a disease which might or might not be curable, and, like other diseases, its cure or alleviation was a gradual process. It would, therefore, be very difficult in many cases to determine the point at which the patient might be said to have been cured or to have made such progress as to be properly released, and this would be a matter peculiarly unsuited for public inquiry. Moreover, as the function of those who had to determine whether the patient was to be released or further detained was not to investigate any charge against the patient as though he were an alleged criminal, but whether certain action should be taken in his interests and those of the public, the matter was unsuitable for forensic treatment, and it would be very undesirable that the local authority or the person in charge of the asylum should be forced into an office analogous to that of prosecutor. Again, a very large proportion of lunatics considered that they were wrongfully detained, and every one of these people would have the right to demand an inquiry and many of them would exercise it. The question of a lunatic's condition was unsuitable for discussion in public—often unpleasant and sometimes humiliating for the patient and detrimental to his interests.

EVIDENCE OF THE MINISTRY OF HEALTH.

Mr. L. G. Brock, Assistant Secretary to the Ministry of Health, next gave evidence. He said that the powers of the Local Government Board were transferred to the Ministry of Health under the statute which set up the Ministry, while certain powers of the Home Office relating to lunacy and mental deficiency were also transferred from time to time by Order in Council. The powers and duties entrusted to the Minister might be grouped under four heads: (1) The Minister had certain limited powers with regard to the individual lunatic. He had no power to order the discharge of a patient, but he could initiate inquiries on complaint. (2) He was called upon to approve the provisions made by local authorities for the accommodation of lunatics. (3) He had certain powers in relation to the Board of Control. He had power to recommend for appointment the non-legal Commissioners, and to approve other (staff) appointments. He was also responsible for the Board's estimates in Parliament. But, apart from these ultimate sanctions, the Minister had no power to give directions to the Board for any specific administrative act, though, as a matter of practice, the Board invariably met the Minister's wishes. In the daily administrative work of the Lunacy division of the Ministry all patients' letters were carefully read by the responsible officer, and, whenever necessary, the Board of Control was consulted regarding the latest medical report on the patient's condition. There were, of course, a number of chronic patients who wrote regularly, but whose mental condition was fully known to the department, and in other cases the letters bore on the face of them unmistakable evidence of insanity; for example, correspondents frequently complained of being "poisoned by wireless." All letters were carefully examined with a view to seeing if there was any allegation of wrongful detention or ill-treatment. Where the Board of Control had not available a special report from the medical superintendent on any such allegations, or where there was still room for doubt, the Minister asked that the Commissioners at their next visitation should pay special attention to the patient. If a case presented medical as distinct from psychiatric issues which called for investigation a medical officer of the Ministry would be sent to report on it. He added that the correspondence did not afford any evidence whatever of persons having been improperly certified or detained longer than the medical superintendent believed to be necessary, nor had any allegations of ill-treatment been fully substantiated. At the same time it was clear that there were a number of patients in mental hospitals who, though in no sense sane, could be discharged without danger to themselves or the community if their relatives were willing and able to look after them. The exact point at which a person suffering from mental disorder was sufficiently recovered to justify discharge was necessarily a matter of opinion; and some superintendents, mindful of the risk they incurred by recommending discharge prematurely, were more cautious than others. It was also remarkable that in many instances where the relatives were convinced that the case was one of improper detention, the medical report indicated a definitely bad prognosis. The explanation might be that in certain forms of insanity which were slow in development there were periods of quiescence, and as the relatives were only allowed to see the patients on good days they formed an incorrect impression of his mental condition. Other cases developed acute symptoms at an early stage, and, though the prognosis was hopeful, the relatives, having seen the patient violent or raving, had no doubt as to his insanity nor had they much hope of his recovery.

In reply to questions, Mr. Brock said that the Ministry had no alienist on its staff, though one member of the medical staff had had some experience in a mental hospital. He preferred not to answer a question as to the advantages of the Board of Control as a separate authority instead of a department in the Ministry, but he said that the relations between the medical Commissioners of the Board and the medical officers of the Ministry were based on mutual courtesy and administrative convenience, and the result was quite satisfactory.

Mr. H. W. S. Francis, Assistant Secretary of the Ministry of Health, in charge of the Poor-law Division, gave evidence dealing with the functions of the Ministry as the successor of the Local Government Board in dealing with the administration of Poor-law. The department kept closely in touch with the Poor-law authorities through a body of general inspectors, medical officers, and women inspectors. Every Poor-law institution was visited at least once a year. The general inspectors had statutory power to hold inquiries upon oath in matters of Poor-law administration. During the past five years such formal inquiries had been held in two cases in which persons of unsound mind were concerned. The number of insane persons who were inmates of Poor-law institutions, or institutions other than the public asylums, maintained wholly or partly at the cost of the poor-rate, was 27,432, of whom 8763 were inmates of Poor-law institutions provided solely for mental cases, and almost all the remainder were in the sick or other wards of Poor-law institutions. The witness was closely examined as to the procedure at inspections and inquiries, and in one case in which an inquiry as to the ill-treatment of a patient had led to no conclusive result the Chairman remarked that this did not seem very satisfactory.

PROPOSALS OF RELIEVING OFFICERS.

Mr. E. J. Lidbetter, President of the National Association of Relieving Officers, suggested certain proposals to the Commission. He recommended that there should be no difference in the process of certification between the pauper and the non-pauper; except in very rare cases, juveniles should not be certified as insane, nor should cases of senile dementia. The provisions of the Mental Deficiency Act should be amended to enable juvenile pauper cases to be dealt with under its provisions. The Board of Control, or some other authority or commission, should be endowed with powers to determine, under proper safeguards, ambiguities under the statutes and points of law involved. His principal recommendation, however, was that workhouses should no longer be regarded as places of safety for alleged lunatics; asylums committees should be required to provide sufficient reception houses in all urban areas. In such centres there would be sufficient cases to justify and require a rota of justices holding a daily session, and therefore there would be an end to the trouble which frequently at present arose, of securing a justice. The preliminary period of detention under this system need not be as long as three days. The work of such daily centres would be more formal and the investigation of cases would be carried out in a more judicial atmosphere than was possible in the wards of workhouses. There would be at the reception house a resident medical officer available for purposes both of treatment and observation. The reception house would also serve the purpose of a clinic, providing advice and treatment to out-patients. On the recommendation for the discharge of a patient from an institution for lunatics, the staff of the reception homes should be called upon to inquire into and report upon the conditions into which it was proposed to release the patient, and also to make some provision for after-care. The method would also make possible a system of information and record-keeping. In fact, there might be a cross-index containing particulars of every lunatic or alleged lunatic.

The Chairman thanked Mr. Lidbetter for his communication, and said that although the Commission was naturally anxious to do everything that was possible this procedure seemed likely to involve great expenditure.

EVIDENCE GIVEN BY MAGISTRATES.

The Commission sat for the fourth time on Oct. 22nd, under the same chairmanship, when evidence was given by magistrates as to the work done by them under the Lunacy Acts.

Sir John Barnsley, magistrate for the city of Birmingham and deputy chairman of the visiting justices of that city, placed before the Commission suggestions and recommendations made at a special meeting of the Birmingham justices. He said that as a rule he had no difficulty in signing a certificate for detention. He saw alleged lunatics either at his private residence or place of business, or, if they had been taken into custody, he saw them in a private room at the police station. It was no doubt the general practice to see a patient personally before signing a certificate, but it was recommended by the Birmingham justices that a personal interview should be compulsory. It was also recommended that where a doubt existed in the mind of the justice there should be, before final certification, compulsory preliminary observation in some place other than the workhouse or asylum, for instance, an observation clinic. The witness agreed with the Chairman that it should be a place to which there should be a right to send persons of any social position, whether they could pay or not, and that probably the additional expenditure involved might be set off against the saving from the diminution of the probable number of cases which would have to be sent to asylums. Charges might be made for treatment and the institution or clinic could serve as a centre for giving advice and assistance to outdoor cases. It should also be possible for patients to enter the institution voluntarily for a period of treatment without any detention order having been given. If such voluntary cases had dangerous tendencies, some form of compulsory detention would have to be adopted, and naturally such tendencies would be manifest prior to treatment. As to visitation, it was urged that some independent authority should, on the lines provided under the Mental Deficiency Act, periodically visit and report upon all persons detained under the Lunacy Laws. All patients should be visited at the end of the first year, again at the end of the second year, and subsequently every five years. The rota for visitation under the Mental Deficiency Acts was so arranged that one magistrate saw the same person each year and could therefore note the progress that was being made. It would, of course, be necessary to enlarge the judicial authority and increase the number of visitors if that method was adopted.

The Chairman pointed out that the visit would be for the purpose of interviewing the patient who presumably thought he was being unlawfully detained. He had some difficulty in seeing how the visitor would decide that the case was one that ought to be liberated.

Sir John Barnsley replied that he did not suggest the visitor should have power to do anything more than report to the Commissioners that he had visited the case and in his opinion, as a layman, the patient might safely be discharged. It would then be for the Commissioners either to accept that view or to give reasons why it should not be given effect to.

Mr. W. H. Lord, magistrate for the city of Birmingham, was in accord with the views expressed by the previous witness as to observational treatment. His evidence was confined to the admission of patients; he said it was his practice to interview alleged lunatics in the cab in which they were brought to his house by the relieving officer. He had never had occasion to doubt the medical certificates submitted to him. It was proper, he thought, that relatives and friends should know that a certificate might be given in any particular case, though he did not make a practice of inquiring of the relieving officer if there were relatives, and why they were not present. He was of the opinion that it would be well to have a second certificate in pauper as well as in private cases.

Answering a question with regard to treatment, the witness said that in a large number of cases the proceedings and treatment were often too long delayed. He was under the impression that treatment prior to the stage at which certification could take place might prove to be remedial.

Sir Robert Walden, magistrate for the County of London, and chairman of the visiting magistrates for the county, agreed that personal contact was a great advantage, though it did not exist when private patients were admitted. He had had occasion to differ from medical men and had refused to sign certificates in certain cases, referring them back for further observation. He knew he had the right to call in another medical practitioner to inquire into such cases, but if they were difficult he would rather have the advice of an expert. With regard to provisional or experimental treatment, Sir Robert Walden was in favour of the establishment of a hostel under the management of an expert neurologist, assisted by trained nurses having psychological and other certificates, who should be able from time to time to report on the case. To such a home suspected cases could be sent before a certificate was issued, and he thought that since there would be no connexion with the workhouse or asylum, there might in many instances be a better chance of recovery. There might be two such institutions, one north and the other south of the Thames.

The Chairman said that at the end of the period of trial it might be found that certain patients were obviously cases for certification, and they would then pass to the asylum or to the workhouse, or possibly be the subject of application for reception to a licensed house. On the other hand, it might be found that as a result of the trial a person was not certifiable and ought to be returned to his or her friends. Could it not be hoped that during the period of provisional detention the cases benefiting by the quiet and treatment might completely recover?

Sir Robert Walden thought that 50 per cent. of the cases might do so. The provision of such institutions would relieve the pressure on the asylums in the metropolitan area, the accommodation in which had been inadequate for some time. From experience gained in the course of frequent personal visits to London asylums he had found, in conversing with patients, that in some instances there was justification for their complaints. Frequently, however, the complaints were not substantiated.

The Chairman asked whether Sir Robert Walden had any views in regard to some independent tribunal or investigation as to the state of a patient in an asylum.

Sir Robert Walden replied that in a border-line case it might be desired to consult an expert.

The Chairman asked if the witness thought it desirable that those dealing as medical practitioners with mental cases should have some special qualification as distinct from the qualifications of the ordinary medical practitioner. Sir Robert Walden replied that over and above general medical education, such practitioners should be specialists in that particular branch of work and have had considerable experience.

Sir Humphry Rolleston said he had been much impressed by the stress laid on the desirability of the judicial authorities being highly experienced men and the medical men specialists. Was the witness of the opinion that the judicial authorities should be as specialised in regard to the inquiry into diseases of the mind as the coroner in regard to investigation as to the cause of death?

Sir Robert Walden said it would be better, but he thought it was impossible. It would be necessary to have a paid authority. As to the medical man being as great a specialist as the coroner and pathologist, he maintained that a man dealing with mental cases could not have too much knowledge. Certainly the D.P.M. certificate should be held by all who dealt with such cases.

Earl Russell asked the witness if he thought it desirable that there should be instituted in England the practice prevalent in Scotland of boarding out suitable cases in villages. The witness replied that provided both the cases and the foster-parents were carefully selected, that might prove a desirable course in certain instances.

Councillor C. F. Sanders, magistrate for the city of Cardiff, said he had no difficulty in regard to certifying cases. He was, of course, bound to rely on the certificate of the medical officers. He did not understand it to be his task to examine a patient and satisfy himself from his own observation as to whether that patient was sane or insane. Continuing, the witness said that in the course of the past two years as many as 333 cases had passed through his hands, out of which number 58 had been discharged without a certificate having been granted. In answer to a question by the Chairman as to these 58 cases, Councillor Sanders replied that they were dropped for various reasons, a large proportion of the cases having been brought in suffering from delirium tremens and the taking of methylated spirits, whilst others apparently suffered from severe depression of sudden onset, which after a short rest had passed off. There was sufficient accommodation in Cardiff for all cases arising in the area. Councillor Sanders had never seen anything to suggest to him that any further precautions to protect the public against undue detention were required.

The evidence elicited during the sitting showed that there were differences of procedure as between Birmingham and Cardiff. Whilst Councillor Sanders said that in 19 cases out of 20 he had before him, when considering the signing of certificates of detention, written statements from relatives or friends as to what they knew of the alleged lunatics, Mr. Lord said he made no inquiry as to whether the patient had either relatives or friends. Again, in Birmingham the workhouse was not used as an original place of detention or as a place in which the justice might visit the patient, whereas in Cardiff it was the almost invariable practice to use the workhouse for both purposes.

The Commission adjourned until Nov. 4th.

Reviews and Notices of Books.

THE EXTRA PHARMACOPŒIA.

Eighteenth edition. In two volumes. Volume I. Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.D. Lond., D.P.H. Lond. London: H. K. Lewis and Co., Ltd. 1924. Pp. 1163+xxxviii. 27*s.* 6*d.*

IN the four years since the last edition of the Extra Pharmacopœia appeared much work has been done on the chemical and physical properties of the substances used in medicine, research to which the authors have made their own contribution. All this practical laboratory work has been summarised and critically sifted with a view to presenting to the practitioner and pharmacist a key to up-to-date information on drugs and therapeutic agents in a pithy and concise form. Some new features appear in the present edition. Notes on alkaloids deal with both bench work and physiological trial, and a means is suggested of enhancing the effect of these drugs by the simultaneous use of alkali; this "activation" is corroborated by experiment on the authors and their assistants. Information on periodides, unavailable elsewhere, is given in this book along with the actual therapeutic doses determined by use in man. Attention is called to the intravenous application of salts of aspirin, the calcium salt having proved of definite service in relieving pain in sciatic and rheumatic affections. A heroic attempt has been made to bring the evidence regarding alkali bismuth tartrates into proper order. The provisions of the Dangerous Drugs Acts are set out in a form which makes the duties both of medical man and pharmacist clear at sight. Timely information will be found on many current topics; the value of ethanesal, the properties of nucleinic acid in increasing the leucocyte count, the fact that solutions of cocaine hydrochloride really can be boiled in glass vessels, the claims of Besredka to produce vaccines effective on oral administration. The poisons schedule is brought up to date, and an intravenous dose table throws light on dosage in a field where standardisation has been imperfect. Not the least interesting part of the book is the preface containing some remarks straight from the heart of a dispensing chemist who would welcome the confidence of the physician on matters of doubt relating to prescriptions. The authors appeal to the practitioner to help forward the British drug industry.

We have said enough to show that in its new form the Extra Pharmacopœia remains a storehouse of current information and a safe book of reference. We repeat our opinion that it is one of the few books which the medical practitioner, the analyst, and the pharmacist cannot afford to be without.

FERTILITY AND STERILITY IN HUMAN MARRIAGES.

By EDWARD REYNOLDS, M.D., and DONALD MACOMBER, M.D. London and Philadelphia: W. B. Saunders Company. 1924. Illustrated. Pp. 285. 25*s.*

THIS is a comprehensive monograph on a subject that has received considerable attention in the last 20 years. From the beginning the authors emphasise the fact that modern research has shown more and more emphatically the importance of the male in all questions of fertility, and for this reason they have secured the collaboration of an expert on the subject of male sterility, Dr. Edward L. Young, jun. Even such conditions as habitual miscarriage and one-child sterility are, as they point out, not necessarily indicative of trouble in the female. Miscarriage may be due to decreased fertility of either partner, the miscarriage resulting from the death of the fœtus or from its imperfect attachment to the uterus. Observations on animals have shown that in the cases of impaired fertility the uterus contains a percentage of blighted embryos interspersed among normal ones, the condition being due to conjugation by imperfect gametes. In an interesting chapter dealing with relative infertility in human marriages, the authors discuss the influence of diet, habit, physical exercise, nervous overstrain, and minor constitutional derangements on fertility. They quote instances of oligospermia in the human male which have been remedied by the adoption of a suitable diet and of sufficient outdoor exercise to improve assimilation, and it is obvious that if such changes can be effected in the male equally satisfactory results may be expected in the case of the female. The diet which is most favourable to fertility is one which contains a high percentage of animal proteins, together with some slight excess of vitamins and mineral salts. Associated with the alterations in diet should be a complete and prolonged change from habits of civilised life with the substitution of outdoor for indoor work. The alterations should, in the opinion of the authors, be made as early as possible in all cases in which marriage is not promptly followed by pregnancy. In the absence of voluntary prevention failure of prompt impregnation after marriage always implies at least some slight abnormality in the condition of one or other partner. In dealing with obviously diseased conditions of the genitalia it is interesting to note that the authors consider that the importance of gonorrhœa in causing female sterility has been exaggerated. This exaggeration they believe to have resulted from an unwarrantable assumption that chronic genital infections in a married woman, even unaccompanied by the history of an acute onset, are always due to unrecognised gonorrhœa in the husband. In actual fact non-specific infections are far more common than is usually recognised, and in the opinion of the authors these can be differentiated from gonococcal infections by the absence of a history of acute onset.

The book concludes with a chapter on the surgery of sterility. This includes operative measures on the cervix, such as Pozzi's operation, curettage, and the surgery of the ovaries and tubes. Included in the latter is a description of the technique of insufflation of the tubes with carbon dioxide gas as a means of diagnosis and treatment of tubular disease. Finally the authors point out that surgery, although it may be of use in remedying certain grosser defects, is only one of the weapons with which sterility can be attacked, and that in all cases it is of vital importance to consider carefully the physiology of the condition. It is indeed along physiological rather than pathological lines of study that future progress in this subject will be made.

This book is clearly written, well balanced in its views, and comprehensive in its outlook. We recommend it to all interested in this important subject, whether they be gynæcologists, genito-urinary surgeons, or general practitioners.

AMPUTATIONS.

By NORMAN THOMAS KIRK, M.D., F.A.C.S., Major, Medical Corps, U.S. Army. Published under the authority and with the approval of the Surgeon-General, U.S. Army. Washington, D.C.: *The Medical Interpreter.* 1924. Pp. 110+ix.

Major Kirk is chief of the Amputation and Orthopædic Section of the Walter Reid General Hospital at Washington, and here, as previously at No. 3 General Hospital in New Jersey, he has had exceptional experience of amputations, some 700 of which he has himself performed. He is therefore able to speak with authority. This monograph may, moreover, be considered as embodying the views officially approved by the medical authorities of the United States Army, seeing that Surgeon-General Ireland contributes a foreword to it. It must be a matter of congratulation that Major Kirk seems to have arrived at conclusions as to sites and methods of amputation very similar to those that were reached some years ago by British surgeons and expressed in works published in this country. The author describes an ingenious and apparently successful flap-sliding method for covering short guillotine stumps which is likely to be of use should the septic conditions of the war in France be repeated in the future, and which may well be borne in mind by all surgeons who have to amputate crushed limbs, with great destruction of soft parts, and consequent scarcity of covering for the bones. The provisional artificial leg adopted by the U.S. Army appears to be rather over-elaborate for its purpose, and to lack the simplicity of the fibre cone, deservedly popular in this country, which is not mentioned by Major Kirk. To many surgeons it appears better that the patient should have a provisional prosthesis as soon after amputation as possible, but this should be one as easily controlled as the jointless fibre cone, rather than an elaborate artificial limb with knee- and ankle-joints. Major Kirk describes and recommends a provisional arm made on somewhat similar lines to the leg.

Syphilis.

Kurzes Lehrbuch der Gesamten Syphilis mit besonderer Berücksichtigung der inneren Organe. Fachbücher für Ärzte, Band IX. Herausgegeben von E. Meirowsky, Köln, and Felix Pinkus, Berlin. Berlin: Julius Springer. Pp. 572. $6.50.

This is a complete handbook of syphilis edited by Drs. Meirowsky and Pinkus, in collaboration with 14 other writers. Prof. v. Wassermann contributes a concluding chapter.

The aim of the book is to bring the whole subject of syphilis in all its medical ramifications within one volume, and though we remain doubtful as to whether this is the best way to treat such a complicated subject, we must admit that much success has been achieved. The book has been kept within reasonable limits, and not much overlapping is found. The different chapters are each written by one who is an authority in his specialty. The change, however, in the style of writing from chapter to chapter makes the book less readable to the foreigner as a text-book, while as a work of reference it is too condensed. The chapters on syphilis of organs of the chest and abdomen and nervous system are excellent—that on syphilis of the organs of internal secretion is not so good. In the matter of therapy the notes are scrappy, excepting the part on the treatment of tabes.

The volume as a whole may be commended. It has been written and edited with the greatest care.

Infections by Unknown Organisms.

Traité de pathologie médicale et de thérapeutique appliquée. Vol. XVI., Infections à Germe Inconnu. Publié sous la direction de Emile Sergent, Professeur de Clinique Médicale Propédeutique, Médecin de la Charité, Membre de l'Académie de Médecine; L. Ribadeau-Dumas, Médecin de la Maternité; et L. Babonneix, Médecin de la Charité. Paris: A. Maloine et Fils. Pp. 143. Fr.25.

A collection of diseases due to infections by unknown organisms in a single volume is a good idea. Such a collection should give the reader a mass of information which is often difficult to sift from the usual sources, and it should, moreover, be a keen reminder of our ignorance of the essential pathology of many of the commonest diseases. The volume under review is, however, disappointing: many obscure infections are not mentioned, and there are included certain diseases, such as whooping-cough, in which the causal organism, if not finally and completely established, is nevertheless believed to be known, by the writers of the article amongst others. Apart from the paradox of its inclusion, the article on whooping-cough by E. Weill and Péhu is excellent, the clinical evidence that pertussis is infectious only in the stage before the paroxysmal cough develops being particularly interesting. H. Grenet's description of rheumatic fever is marred by the narrowness of his review of the world's literature; such English authorities as he quotes are often given with wrongly-spelt names, a fault which is deplorably common in French medical literature. British observers will not agree with this writer in his statement on page 267 that the essential lesions of rheumatic fever are in the joints. The most interesting articles in the volume are those by Prof. E. Marchoux, on sweating sickness, and by P. E. Armand-Delille, on influenza; the latter embraces a clear summary of our present knowledge, and may well be studied by all students to whom the late epidemic was an episode in their pre-medical days. Of the diseases omitted, trench fever and encephalitis lethargica are the most important; their absence is further evidence of what we have previously noted in this series—namely, a laxity in the general editing.

The Internal Secretions.

For the Use of Students and Physicians. By Dr. Arthur Weil, Assistant Professor of Physiology in the University of Halle. Authorised translation by Jacob Gutman, M.D., Director, Brooklyn Diagnostic Institute. London: George Allen and Unwin, Ltd. 1924. Pp. 287. 18s.

In reviewing the second German edition of Dr. Weil's book in 1922 we expressed the hope that an English translation might put within the reach of more students and physicians the sound information contained in its pages. The translation is based on the third edition, and we have nothing but praise for the way in which the work has been carried out. The order of treatment of the subject is original; the ductless glands are not dealt with seriatim, as is the rule in text-books; Dr. Weil studies them according to their effects. He takes the various functions of the body in turn, and discusses the way in which they are modified by the action of the various internal secretions. Finally, the chemical properties of the internal secretions, their inter-relations, and their relations to the central nervous system are discussed. The treatment is logical and stimulating, and the English edition should prove as great a success as other editions have done. Our only word of complaint is concerning the illustrations; these are not nearly so well done as in the original edition of the work. Fig. 12, for instance, shows scarcely anything.

Ophthalmo-Optical Manual.

By William Swaine, B.Sc., Lecturer in Physics, West Ham Municipal Technical College. London: Hatton Press, Ltd. Pp. 152.

This little book, well written, practical, and non-mathematical, should be of much use to the student workers in ophthalmic optics for whom it is intended. Moreover, ophthalmic surgeons will find that it explains some optical phenomena often passed over too lightly in text-books on refraction—e.g., the cylindrical effect produced by the tilting of a lens or by the obliquity of the line of sight when directed through the periphery of a lens, and the varying effectivity of lenses according to their position in front of the eye. About half the book is devoted to purely optical problems, which are strictly within the province of the optician. The other half deals with the optical defects of the human eye, sight-testing, and correction. This part will appeal to the non-medical prescribing optician, and it must be admitted that if the directions found in it are faithfully followed, his results in the majority of adult patients will probably not be unsatisfactory. The optician, however, must necessarily be at a disadvantage compared with the ophthalmic surgeon in dealing with any difficult case of refraction. His subjective tests, however carefully the methods of "fogging" are carried out, are sometimes misleading, and even with the most intelligent patients it may be very difficult to get wholly satisfactory results without either repeated examinations at different times or else the employment of a mydriatic which, by enlarging the pupil and eliminating the accommodation, makes possible an objective test. Mr. Swaine describes the method of retinoscopy, but without a mydriatic he does not pretend that it can attain to the accuracy which he claims for his subjective tests. More important for the non-prescribing optician is the information on frames, mounts, centring of lenses, &c., which will be found here. The subject of bifocal lenses receives notice which is barely adequate to its importance. With this exception the only obvious defects are a statement on the first page that the dazzling sensation experienced by anybody who after having been in the dark for some time enters a well-lit room is due to the time taken by the pupil before it contracts fully to light; and a sentence on page 24 on the numeration of prisms, which is unintelligible. The last ten pages of the manual are devoted to optical tables, which are decidedly useful. They deal, among other things, with the effectivity of lenses at varying distances from the eye, with the prismatic equivalence of different degrees of decentration of lenses, the prismatic effects in near vision of distance centred lenses, and so on.

We have said that this little book is non-mathematical. Those who require mathematical solutions of problems connected with lenses, prisms, and illumination will find what they want from the pen of the same author in almost any number of the *Optician and Scientific Instrument Maker*.

Charts on the Chemical Reactions of the Common Elements.

By John A. Timm, Ph.D., Instructor in Chemistry, Yale University. London: Chapman and Hall. 1924. Pp. 81. 10*s*.

This book consists of series of equations, grouped in a very complicated manner, with no descriptions of the reactions. The author's method is to start the page with the symbol for the element, and, by means of a series of arrows and lines, to give every reaction. The result is a somewhat bewildering collection of lines and symbols, which may be recommended to those who enjoy wrestling with the intricacies of a Bradshaw time-table.

The Plant Alkaloids.

Second edition. By Thomas Anderson Henry, D.Sc., Director, Wellcome Chemical Research Laboratories. London: J. and A. Churchill. 1924. With eight plates. Pp. 456. 28*s*.

In the new edition much of the text has been rewritten and a good deal of new work incorporated without increasing the size of the volume. Less space is now devoted to methods of estimation. On the other hand, more attention has been paid to such information as is available on the correlation of chemical constitution and pharmacological action, a subject upon which it is still impossible to draw any general conclusions. The exact interpretation of the term alkaloid is a matter dependent upon individual opinion, some writers including and others excluding, for example, the group of purin bodies; the present author belongs to the former category. The number of undisputed alkaloids known is already very large, and new additions are continually being made; in these circumstances it is satisfactory to note how some of the alkaloids which figure among those of unknown constitution in the earlier edition appear in the later one among those whose constitution is established; this is notably so in the harmaline and cephalonium series of alkaloids, the last named occurring in the so-called "Mescal buttons." A new feature of the present edition is the inclusion of eight full-page plates, illustrating some of the more important drugs.

Reports and Analytical Records.

"TABLOID" HYPODERMIC INSULIN HYDROCHLORIDE (STERILE).

(Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C. 1.)

This new "tabloid" preparation of insulin, prepared under conditions formally approved by the Medical Research Council, has been submitted to clinical tests with results that coincide with standard insulin, while the tabloid form ensures sterility, stability, and accuracy of dosage. The product is biologically tested before issue. Each tabloid is equivalent to one average dose of ten clinical units, and when dissolved in 0·5 c.cm. of sterile distilled water is equivalent to an equal volume of standard insulin. The product is supplied in two packings, (1) cartons containing ten tabloids in one tube, and (2) cartons of ten tubes each containing one tabloid.

SOLOID BENEDICT TEST.

(Burroughs, Wellcome and Co.)

This test for sugar in the urine is reputed to be more delicate than Fehling's test. The tabloid outfit consists of a carton containing alkaline citrate and copper sulphate which may be used in one of two ways; in either case the colour change occurs with as little as one per mille of glucose, the change being very pronounced when two per mille or more of glucose is present. The instructions are as follows:—

1. Dissolve one "Soloid" Alkaline Citrate in 30 minims (1·8 c.cm.) of water with the aid of heat. Dissolve one "Soloid" Copper Sulphate in the hot solution and add four drops of urine; mix and boil gently for two minutes. The presence of glucose is indicated by a change in colour and formation of a yellowish to red precipitate.

2. Alternatively, the mixed urine and Benedict Solution may be heated in a boiling water bath for five minutes, allowed to cool, and the colour noted after ten minutes. A change in colour is produced by the urine containing 0·1 per cent. of glucose, and the difference is very decided when 0·2 per cent. of glucose, or more, is present.

The method is intended for qualitative analysis outside the laboratory for patients to whom insulin is being administered and whose urinary sugar content is the deciding factor in treatment. Each carton contains sufficient material for 24 tests.

ALLENBURYS DIET FOR ADULTS.

(Allen and Hanburys, Ltd., 37, Lombard-street, London, E.C. 3.)

This is a partially digested milk and wheaten food which is readily assimilated. While suitable in general for persons of weak digestion it is especially recommended for use by nursing mothers, invalids, convalescents, and the aged. Its preparation entails no trouble; it is simply necessary to add boiling water and stir. The percentage composition of the diet is stated as follows:—

Milk Fat	15·4
Milk and Wheat Protein	15·2
Carbohydrates (Lactose, Soluble Starch, Malto-Dextrin, &c.)	62·9
Mineral Matter	4·3
Moisture	2·2

Calorific Value: 132·3 calories per oz. weight of powder.

This diet is quite distinct from the well-known foods for infants prepared by this firm.

ZEDENO POROUS SHEATH BANDAGE.

(Chas. Zimmermann and Co., 9/10, St. Mary-at-Hill, London, E.C. 3.)

This is described as the Swiss Zedeno dressing for varicose ulcers and is a plastic web bandage which dries at the temperature of the body in about a quarter of an hour after application, forming an even and comfortable sheath for the ulcerated area. It is claimed that by its use relief can be obtained for varicose veins and varicose ulcers without keeping the patient in bed. The composition of the dressing is not stated, but it appears to be an elegant form of Unna's paste and should prove of practical value.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 1, 1924.

SPIRITUAL HEALING.

THE practitioner of so-called orthodox medicine is confronted from time to time with records of "cures" obtained by what are often claimed to be unorthodox methods, and with rumours of still more marvellous results secured, as the exponents of these methods hint, by means of which the ordinary physician has no cognisance. We are told that in matters political the public memory is notoriously short, but in matters medico-therapeutic it is equally true; or, rather, there is an admixture of ignorance with the forgetfulness, for it is surprising how frequently modes of healing that are openly advertised as "new" or "novel" only repeat a technique which is as old as the hills. The undoubted success of not a few varieties of the healing art vaunted as panaceas by enthusiastic disciples, if not always by their supposed originators, offers food for thought and suggests some comments. Without going further back than the last hundred years, the student of the subject can readily recall instances of spiritual healers who have risen to fame and success, and have enjoyed a vogue claimed to be unprecedented, who have, it may be, established schools of devotees, only to fall at length into an equally profound oblivion. The founder of the Mormon religion, JOSEPH SMITH, cast out devils in the name of the LORD, and tried his hand on diseases with no little efficacy, if old records are to be trusted. In fairness it should be said that behind his apparatus of holy oil, consecrated flannels, and the like, SMITH gave shrewd indications that he had at least apprehension, dim though it may have been, of the power of mental suggestion. He recognised his limitations in the cholera epidemic of 1834, and, with a curious combination of religiosity and what the Americans call "horse-sense," held to a theory that healing is a sacerdotal gift, a priestly function, and that without faith no cures are possible. The cult of Dowieism was founded by JOHN DOWIE, of the "Temple of Zion," whose meteor-like rise to heights of notoriety led many of the unthinking to hail him as almost divine, and who published a now utterly forgotten periodical entitled *Leaves of Healing*, filled with wonderful (and preposterous) examples of cures effected "at a distance" through a mystical power of faith of which he was the arch-exponent. More recently still, we hear of a "New Civilisation Church and School," whose teaching, its originator lucidly explains, "is standardising the world and passing all thought into one great universal impulse," and where healing by regeneration through fasting and otherwise holds a prominent place. Again, a little brochure has reached us which heralds the advent in this country of a system of healing "practised with great success for about thirty centuries in Gosainthan, the highest shrine where man holds communion with his Creator, situated 16,800 feet above the sea-level, among the snows of the Himalayas." For a reason that is sufficiently obvious, it is contended that this particular method of *healing* does not "in any way interfere with the Christian *faith*."

If we examine dispassionately such features as these and many other movements of a similar character have had in common, we are met at once with the universal existence of an interrelation between practitioner and subject consisting in sublime self-confidence on the part of the former and eager expectation on the part of the latter. Without this *rapport* no fruitful results can be attained. For the securing of these, further, an atmosphere of emotional preparedness is no less imperative, and the more lush the emotion the more effective is the ceremonial. Of the truth of this statement history provides innumerable instances. If the curious reader will examine the published records of spiritual revivals and camp meetings among any comparatively emotional populace he will find abundant evidence to the purpose. Thus the Rev. SAMUEL J. MOORE published in 1859 a now forgotten little volume entitled "The History and Prominent Characteristics of the Present Revival in Ballymena and its Neighbourhood," in which he scans critically the accompaniments of the movement, and adduces instances both of the appearance of purely hysterical phenomena under the mass-influence of the time and place, and of the "cures" of morbid conditions in the same emotional atmosphere. In an environment of intense sympathetic expectation it is not surprising that resistances are broken down. On a famous occasion, years ago, it may be remembered, the phenomena attributed to the supernormal powers of a celebrated "medium" failed to make their appearance because of the "offensive incredulity" of a young doctor of medicine, happily still with us and known by reputation the world over. Such is the effect of faith, or of unfaith.

Now, when exaggerated if sincere claims are once again being made on behalf of spiritual healing, it is desirable they should be placed in their proper perspective. Of the reality of spiritual emotion there can be no question, but in any discussion of the mechanism of production of the "cures" we are bound in seriousness to ask whether the "spiritual" or the "emotional" factor predominates, whether any distinction is or can be drawn between them, whether the "spiritual" influence accomplishes something beyond the scope of other less pretentious methods. In respect of the last of these our answer must be a direct negative. Cures as "striking," as genuine, and as enduring, are being effected daily in hospitals and consulting-rooms by men who make no claim to tap a wonderful and mystical power outside themselves, who use simple and straightforward means, who adapt themselves to the needs of their patient by explaining technique where this is desirable, or by quiet assurance where the subject does not wish to know, or is intellectually not very capable of understanding, how the result is to be obtained. It seems unnecessary to adduce concrete instances from the experience of any of the practitioners of orthodox medicine, for we should not know where to stop. It is desirable, however, to point out that modern knowledge of the existence of the "unconscious motive," and of the working of the unconscious mind, teaches us to feel no surprise, still less to postulate any supernormal or occult agency, when an inveterate case of "paralysis" casts aside its crutches and walks. A distinguished physician was wont to impress on his students how frequently the chronic "functional" patient "gets tired of his infirmity," with the natural corollary that he becomes ripe for a "cure," and that "cure" may be effected by any means whatever, physical or spiritual, once the psychological moment arises. The history of the recent war neuroses affords one more proof of the accuracy of this observation. No physician worthy of the name is poor-spirited enough to fail to rejoice when the sick in body and mind are healed by "spiritual" agency; but as he can by ordinary techniques effect identical cures himself and is averse to anything that savours of advertisement he may be pardoned if he tends occasionally to become impatient at the interpretation put on their wonder-working by some self-styled spiritual healers. His hope is that more members of the profession will devote themselves to the relief of the great amount of "floating" nervous ailment that exists to-day, for they possess the immense advantage of knowing what can be influenced by mental methods and what can not, and of being able to recognise and diagnose the ætiological factors that are responsible.

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PRESERVATIVES IN FOOD.

THE report, summarised on another page, of the Departmental Committee appointed by the Ministry of Health is an important landmark in the long-drawn-out controversy regarding the use of preservatives in food. For many years the position has been highly unsatisfactory to all parties—consumer, local authority, and food-trader. An inquiry set on foot by THE LANCET in the 'eighties finally resulted in the appointment of a Departmental Committee which made what was then considered an exhaustive investigation.[1] But the report of this Committee, issued in 1901, did not improve matters, for its recommendations (set out on p. 929) never took legal form. They were, in fact, unworkable, since they left the door open to the use of all sorts of new preservatives, except for the few foods specifically mentioned. The present report takes up a perfectly definite standpoint. The trade chemist, as Dr. W. G. SAVAGE has forcibly stated,[2] can always be relied upon to produce other chemical combinations which act as efficient preservatives, and it is futile simply to prohibit specifically-named preservatives. The only effective procedure is to prohibit *all* preservatives, except those in a specified list. If the report is accepted as the basis of legislation all preservatives will now be taboo except sulphur dioxide and benzoic acid, and the use of these will be limited to certain articles and must not exceed prescribed amounts. The report is unanimous that if preservatives are added at all their presence, their nature, and their amount should be frankly declared when the article is sold. Considerable opposition to this was forthcoming, but the Committee satisfied itself that trade interests would not be seriously prejudiced by such a declaration, while the consuming public undoubtedly have the right to know whether or not they are taking preservative drugs with their food. This attitude will be welcome to the medical profession, since there is considerable suspicion, and some evidence, that some obscure disturbances to health may be due to unknown preservatives in the food, and definite declarations as to the presence of preservatives may elucidate the point. Legal difficulties have not been lost sight of by the Committee. To prove that a preservative or colouring matter mixed with an article renders it injurious to health is not an easy, inexpensive, or expeditious matter, and to establish it in one court is not of necessity effective in other instances or in other courts. At present any penalty falls on the retailer, as the person charged, and it is difficult to transfer this penalty to the manufacturer, who is often the real offender. The recommendations as to procedure are intended to remove these anomalies. The proposal that any prohibitions or limitations imposed by the regulations should bind the courts in proceedings under the Sale of Food and Drugs Act is a very important one, since, if adopted, it will only be necessary to prove the actual facts as to infringement.

In arriving at their recommendations the Committee had to consider the other side of the problem which is, how far the addition of preservatives is necessary in the interests of the producer and the community and the extent to which their limitation or prohibition would affect the problem of cheap food. No exact definition of preservatives was attempted, but certain substances, such as salt, saltpetre, sugar, alcohol, are not included, and the term is then interpreted as including "every other substance which when added to food has the property of preventing, arresting, delaying, or masking fermentation or putrefaction of food." In solving this problem the plan which appears to have been adopted was to consider each important food, or group of foods, and after hearing the evidence of the representatives of the trades concerned, to arrive at an opinion as to whether preservatives were really necessary. They considered that trade requirements would be met by allowing two preservatives and those in a limited number of foods, while as regards sausages a concession is made to trade necessities as they exist at present, the opinion being expressed that improved methods should eventually enable preservatives to be dispensed with. The Committee were rightly influenced by the fact that a proportion only of samples of the same kind of food contained chemical preservatives. From this it is an obvious inference that in a good many cases preservatives might be dispensed with, their addition being but a substitute for hygienic precautions and strict cleanliness. As an alternative to the use of preservatives, stress is laid upon the value and utility of the use of cold as a means of preserving food. The prevailing lack of facilities for refrigeration and cold-storage generally is emphasised, particularly in relation to transport. Many of the witnesses examined declared that defective railway transport was one of the main reasons for the use of food preservatives in this country. The Committee which reported in 1901 paid great attention to the subject of the harmfulness of preservatives, although no definite opinion on this subject was included in their recommendations. This aspect appears to have had less influence upon the present Committee and their report cannot be taken as either proving or disproving the harmfulness of the common preservatives in small doses. The difficulties in the way of obtaining proof of harm are so considerable and the evidences of harmlessness are, in the nature of things, so inconclusive that the Committee were well advised to take the broad line that since these substances are injurious in large doses and dosage is uncontrolled, it is justifiable to assume that their presence is undesirable. This is a reasonable standpoint provided that proceedings have not to be taken under Sections 3 or 6 of the Food and Drugs Act, 1875; but, as already mentioned, the point has not been overlooked. It still leaves the problem open as a matter of scientific controversy, but removes it from the heated atmosphere of the law courts.

For practical purposes the report classes preservatives into three groups according to their relative degree of undesirability. Group I., being the most undesirable, includes formaldehyde and its derivatives; hydrofluoric acid, its salts and derivatives. Group II. consists of boron preservatives; salicylic acid and its salts. Group III. comprises benzoic acid; sulphurous acid and their salts. The Committee came to the conclusion that if preservatives are to be used at all in food it is desirable that they should be confined, if possible, to those coming under Group III. Their report, however, refrains from offering scientific evidence in support of this classification. The difficult problem of colouring matter in foods is not solved by the present inquiry. The Committee do not do much more than defer it and recommend that the Ministry of Health should inquire into relative injuriousness and issue a schedule of those substances which may be used. They do, however, adopt the definite standpoint that the addition of colouring matters to foods is to be prohibited, except for those scheduled as harmless, provision being made for the extension of the list on satisfactory evidence of harmlessness. The possibility of toxic impurities, such as arsenic, being present in dyes is given careful consideration, and limits for arsenic are laid down. The prohibition of copper salts as a colouring matter for given vegetables is recommended on the grounds that their use is unnecessary, and that there is evidence that the action of copper salts in small but repeated doses may be prejudicial. From the strictly medical point of view the report may not add much to existing knowledge, but from the public health and administrative standpoints its recommendations, if embodied in legal form, will be invaluable. For the trader they will have the merit of substituting certainty as to what is required of him for the previous uncertainty and the probability of unequal treatment in different areas.

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[1] THE LANCET, 1901, ii., 1682.

[2] Food and the Public Health, 1919.

JAMAICA AND THE PANAMA CANAL.

THE United Fruit Company, an American commercial undertaking, acting on the enlightened advice of the general manager of its medical department, recently conceived the idea of holding an International Conference on Health Problems in Tropical America. To this conference were invited laboratory workers and clinicians from all over the world, and at the end of last July there gathered at Kingston, Jamaica, a body of men, many of them renowned in the scientific world, who had disregarded the advice of well-meaning friends that a visit to this part of the world in the middle of summer would ruin their health for ever, to discuss certain vital problems of tropical medicine. Amongst them was Sir James Kingston Fowler, who has recorded his impressions in a little volume which has recently been published.[1] After some interesting descriptions of the voyage, the pilot, the climate, and the people, the author plunges into the health problems which affect Jamaica. The prevalent diseases are malaria, hookworm disease, enteric fever, tuberculosis, and, until recent times, alastrim, which, from the preventive medicine point of view, is very similar to small-pox. One of the few bright spots in the sanitary history of the island is the work on hookworm disease. A campaign against this disease was carried out by Dr. B. E. Washburn under the auspices of the International Health Board of the Rockefeller Foundation, and proved a very successful effort. Otherwise, in the words used by the author in reference to the housing conditions in Kingston, "the municipal authorities stand condemned on every count." The U.F.C. wished to be shown how, if possible, the health of their employees could be better safeguarded, but the conference also had the effect, common to all such conferences, of focusing the attention of the inhabitants upon the problems in sanitation which confront them. The U.F.C. has certainly realised that sanitation pays, for whenever it takes over an estate the first activities include the building of a hospital, the erection of mosquito-proof dwellings, and the provision of an efficient water-supply ready for the arrival of the workers. That the inhabitants of Kingston have also been awakened to a "health conscience" seems highly probable from the speech made by the mayor at the dinner which terminated the proceedings when he pointed out that the Government must take up and carry out health measures for the island as a whole and not leave the matter in the hands of many small local authorities. Sir James Fowler discusses the interesting question of whether, with the eradication of tropical disease, such places as Jamaica will ever become suitable and permanent homes for white men and, wisely pointing out that it is the problem of the children which is the crux of the whole situation, he declares himself against the notion that Englishmen will ever be at home in the tropics. He concludes the section on Jamaica with some interesting "suggestions," which include the appointment of a special commission for five years with adequate funds at its disposal to deal with the question of town reconstruction for Kingston, to carry out surveys and laboratory research on malaria and hookworm disease, and to establish an efficient campaign against venereal disease which is appallingly prevalent.

Sir James Fowler entered the Panama Canal Zone with a very effective mnemonic for remembering the position of the principal ports. He left it with some remarkable impressions of the canal as an engineering triumph, and he vividly describes the passage through it of ships, controlled from directing stations at each pair of locks. When H.M.S. *Hood* passed through recently there was only just over two feet to spare on either side between the ship and the walls of the locks, and the fact that the passage was achieved without any mishap is a striking testimony to the skill of those who control the canal. From the health point of view the problem now facing the authorities lies in the fact that the number of employees engaged in connexion with the canal is steadily decreasing and the surplus is being absorbed by settling the men as labourers on the land in unprotected areas. Tribute is paid to the work of General Gorgas in connexion with the protection of the workers from yellow fever and malaria which alone rendered the completion of the canal possible, and it was proposed at the conference in Jamaica to commemorate this heroic worker by erecting an institute to be known as "The Gorgas Memorial Institute for Tropical Medicine." But mainly for economic reasons a change in policy has taken place within the last few years, and it was recommended by the authorities in 1921 that "the amounts expended for sanitation in the zone shall be reduced as much as possible consistent with maintaining the sanitary precautions necessary for the preservation of the health of American employees in tropical service." The result has been that amongst the unemployed labourers who have been settled on the land there has been a large increase in the number of cases of malaria. It appears to be impracticable to sanitate the country in which these settlers live, and already the presence of these men has adversely affected the malaria rate among certain of the workers on the canal and the residential and industrial centres are thus constantly threatened with the danger of infection. Sir James Fowler suggests "with great diffidence" that further research is necessary on the habits of mosquitoes with reference to the length of flight as it affects malarial transmission, and that in future when licences are granted to settlers in the zone it should be enforced that their holdings must be kept free from any conditions which may lead to the breeding of mosquitoes, and that in the place of the usual disreputable shacks, protected houses should be provided for these labourers which they must keep in repair. The work done by General Gorgas and his successors with regard to yellow fever has resulted in the disappearance of this disease in the Panama Canal Zone for 18 years, but

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[1] An Impression of Jamaica and the Panama Canal Zone. By Sir James K. Fowler, K.C.V.O., C.M.G., M.A., M.D., D.Sc. London: Eyre and Spottiswoode, Ltd. 1924. Pp. 60. 2s.

Sir James Fowler utters a timely note of warning against the use of the word "eradicated" in connexion with this and other menaces to health in the tropics. He concludes his extremely interesting book with a description of the quarantine measures enforced in connexion with the canal, pointing out the danger attached to the modern simplification of procedure in certain cases where wireless is employed, for shipping passing through under any lax conditions may carry plague and malaria, for example, to distant ports. The United States has a moral obligation to the maritime nations of the world to prevent, as far as possible, the passage of disease to other parts of the world, and while this obligation is fully realised there appears to be a certain amount of danger in a system of "quarantine made easy."

Annotations.

"Ne quid nimis."

VOLUNTARY MENTAL PATIENTS.

ELSEWHERE in this issue appears an article by Dr. Edward Mapother, supplementary to his report which we have already noticed,[1] dealing with the first 18 months' work of the Maudsley Hospital. This hospital is unique in being the only institution provided for out of public funds where mental disorder is treated solely on a voluntary basis, and since it is unlikely to remain in this isolated position, its progress is of the first interest to any who are likely to be concerned in following the example set by the London County Council. It is hardly probable that anything amounting to a divorce between the ideas of detention and treatment will take place within the next few years, and the subdivision of mental hospitals into therapeutic centres and houses for the chronic insane is not immediately practicable, but that county and borough mental hospitals should be enabled to admit voluntary boarders may be called almost an immediate probability, and is already occurring in certain parts of Scotland. Nor is it unlikely that under new legislation further hospitals on the lines of the Maudsley will appear in progressive centres. While all may not agree that the recoverable insane are "entitled" to elaborate and expensive treatment, it may well be found that its provision is a national advantage. The supreme question round which Dr. Mapother's argument centres is suitability for the voluntary status. Here we may recall the observations of Dr. Henry Yellowlees at the annual meeting of the British Medical Association this year on the confusion of thought which exists with regard to "early" cases. The adjectives "early," "mild," "recoverable," "borderline," and "hopeful" are used somewhat indiscriminately, but greater variety than may be masked under these far from synonymous descriptions is hardly to be found in the whole realm of mental disease. The early senile dement may be mild and willing, but he is not recoverable; acute mania is eminently recoverable, but it is neither mild nor willing, and may unfortunately require certification for purposes of sufficient restraint, and because noise is, of all annoyances, the one form of disturbance which voluntary patients particularly resent in their companions. "Non-volitional" cases, who form a not inconsiderable class, present a special problem; would it be of advantage to legalise the detention of cases of confusion (in whom, incidentally, the prognosis under efficient treatment is particularly good) without recourse to certification in its present form?

Our whole system of dealing with insanity is at present in the melting-pot. No one can read the report of the sittings of the Royal Commission, of which an instalment appears on p. 909, without realising this. There are literally unlimited possibilities of change in the near future, and the experiences afforded by the Maudsley "experiment"—for so it is—may play no small part in determining our future methods. Details of many of these are to be found in Dr. Mapother's article. Here it is necessary to refer to only three of his main points. The first expresses the intention for which the hospital was built, and which experience has confirmed. "I wish to uphold the view that the aim should be to promote treatment, apart from the certified, of every willing case." The second is that notwithstanding certain gloomy prophecies the hospital has been filled; applicants for admission are increasing in numbers, and as they increase the selection of cases on the ground of amenability to treatment (and for the subsidiary purposes of research and teaching) will yield more and more satisfactory results. Lastly, the "separate treatment of voluntary cases of all degrees of severity" has been found a workable proposition. This, after all, is the most reassuring conclusion which the first year's work at the Maudsley could have been hoped to afford.

LATE ERUPTIONS IN SCARLET FEVER.

Dr. G. Fanconi,[1] of the Zurich University Children's Clinic, has noticed for several years that convalescents from scarlet fever present peculiar eruptions which are not mentioned in the ordinary text-books. The frequent occurrence of these lesions finally induced him to make a systematic examination of the skin of all scarlet fever patients, with the surprising result that 69 out of 74 children examined exhibited these late eruptions. Their diagnostic significance is increased by the fact that they may occur when there is little or no desquamation. Dr. Fanconi has classified these eruptions into the following four groups: (1) maculo-papular, (2) reticulo-rhagadiform, (3) large papular, and (4) pityriasiform. He regards the classification, however, merely as a makeshift, as all possible morphological transitions may occur between these groups. The maculo-papular eruption begins, as a rule, between the tenth and fourteenth day, rarely later, as a bright red punctate or minute papular eruption on the buttocks and extensor surfaces of the knees on either side of the patella, and then invades the posterior aspect and outer side of the thighs and often the flanks as well. The lesions are at first pale pink in colour, but in a few days the rash becomes more intense, especially towards evening, so that on superficial examination it simulates a relapse of scarlet fever. Subsequently the eruption assumes a yellowish-brown tinge and soon disappears altogether, being followed by secondary desquamation. While this variety is chiefly found in children with a smooth skin and little or no primary desquamation, the reticulo-rhagadiform eruption occurs only in association with intense desquamation, being frequently seen on the sides of the abdomen and thorax. It often accompanies the large papular variety which appears in a large proportion of all cases at the end of the first or beginning of the second week in the form of punctate brownish-red macules and papules. Towards the end of the second week some of the lesions become larger and usually assume a violet-red or brownish colour surrounded by a centripetal collarette of ragged epidermis. Lesions of this kind are found on either side of the patellæ, the thighs and sacrum being either isolated or thickly set or even confluent. The pityriasiform eruption which appears on the face at the end of the first week or in the course of the second often affects children who have had a similar skin eruption. It consists of sharply circumscribed, slightly raised lesions covered with white scales, and is most abundant round the corners of the mouth and eyes, while it is much less frequently found on the trunk and limbs. The occurrence of these eruptions is attributed by Dr. Fanconi to three main factors—viz., (1) mechanical irritation of the skin from without—e.g., a late eruption may be artificially produced by the application of sticking-plaster; (2) local skin changes due either to scarlet fever or to previous disease or irritation of the skin; and (3) internal processes, of which another manifestation is an increase of the neutrophil leucocytes of the blood.

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[1] THE LANCET, Oct. 11th, p. 761.

[1] Jahrbuch für Kinderheilkunde, September, 1924.

BRITISH TRADE IN DANGEROUS DRUGS.

FIGURES have just been issued by the Home Office to show the effect on British trade in morphine and heroin of the restrictive measures which were imposed by the British Government under the Dangerous Drugs Act, 1920, in fulfilment of the International Opium Convention of 1912. The following table gives the amounts of morphine, heroin, and their salts manufactured in this country during each of the last 14 years, and in the case of morphine the quantity exported. The latter information is not completely available in the case of heroin.

Year.	Quantity in ounces of morphine and its salts.		Quantity in ounces of heroin and its salts manufactured.
	Manufactured.	Exported.	
1910 ..	486,975	—	10,272
1911 ..	406,877	208,544	3,785
1912 ..	425,408	276,560	3,034
1913 ..	564,035	406,160	11,665
1914 ..	735,628	504,016	12,249
1915 ..	926,743	295,568	29,756
1916 ..	1,033,162	225,616	26,761
1917 ..	751,851	124,592	46,338
1918 ..	294,703	136,832	34,669
1919 ..	547,347	322,912	84,414
1920 ..	643,985	322,464	76,145
1921 ..	115,734	77,364	12,385
1922 ..	131,028	131,658	31,673
1923 ..	87,940	98,831	11,576

It should be added that the figures given as manufactured are the net amounts of morphine manufactured for use as such, and do not include morphine manufactured for conversion into heroin, codeine, or other alkaloids. The export figures for the years 1911 to 1920 are compiled from the Customs returns and do not include exports by parcel post or exports of preparations containing the drugs. The figures for 1921-23 are compiled from the returns made to the Home Office and include both exports by parcel post and exports of preparations containing the drugs. The export figures for the years 1914 to 1917 do not include exports on Government account between August 4th, 1914, and June 30th, 1917.

PERIODIC ROUTINE MEDICAL EXAMINATION.

IN his presidential address on Oct. 23rd to the Section of Epidemiology, Royal Society of Medicine, Dr. J. C. McVail referred to two directions in which he regarded further progress as possible in the improvement of health and the prolongation of life. One was the merging of medical service under the Poor-law into the general scheme of health administration. The other was the routine medical examination of individuals apart from illness. He recalled the fact that in 1907, at the request of the Royal Commission on the Poor-law, he had investigated Poor-law medical relief in England and Wales, and in his report had urged a system of medical inspection at all ages of life. The family doctor would, not too frequently, but at reasonable intervals, offer to make examination of those for whose health generally he is, or ought to be, responsible. His suggested course of action was sketched out by Dr. McVail as follows:—

1. He would acquaint himself with the general family history. He would note tendencies requiring to be checked—tendencies to general disease like tubercle, gout, rheumatism, diabetes, obesity, cancer, insanity, alcoholism, or the like.

2. With regard to the children, he would note their physical condition as a whole, their state of development in relation to age; indications of rickets, or tubercle, or glandular disease, enlargement of tonsils, defects of hearing and of sight, as bearing on health and education. He would give advice as to diet, bathing, fresh air, exercise, and the like. By prevention of rickets in female children he might succeed in hindering pelvic deformity with its serious results belonging to the child-bearing period of life. In connexion with the occurrence of actual illness, he would be careful to note whether there was any threatening of dangerous sequelæ, such as endocarditis after the acute infectious diseases; or ophthalmia or otorrhœa, which last, if neglected, is often followed, sometimes after an interval of many years, by fatal inflammation of the brain. He would note whether the child's nervous system was being properly developed, on the one hand, and its functional activity sufficiently restrained on the other. As regards the school child, he would see whether school work was being overdone; whether there was headache, or insomnia, or night terrors; whether the child was being taught to practise steady application in any specified task; whether it was being permitted to read books of too exciting or too advanced a character; whether it was being sent sufficiently early to bed, and made to rise early enough in the morning; whether it was being punished unwisely for faults due to its physical and mental condition.

3. As the child continued to grow into youth, the medical man would note whether athletic exercise was excessive; whether injury to the heart or other vital organs was being threatened; whether cycling was being overdone; whether, on the other hand, the youth was leading too sedentary a life and was unduly given to reading. When the time came he would advise as to the most suitable occupation, looking to the general physical and mental health and condition. Amongst girls, he would note tendencies to anæmia, gastric ulcer, and the like, and again, the question of insufficiency or excess of exercise would arise. Here, also, he would advise as to occupation with relation to length of hours and healthiness of employment, whether the work would be too sedentary or require too much standing; whether, as in the case of a teacher, it might involve too severe mental strain or voice strain; whether neuralgia and insomnia would result from the life proposed to be led.

4. Amongst women he would see that due care was taken to prevent mischievous sequelæ of childbirth, such as uterine displacements or inflammations.

5. Among men he would observe any tendency to trade disease, whether their employment was such as made special calls on any of the vital organs, and if so, whether these organs were reacting properly to the stimulus, or were threatening to break down under it. In most cases the important organs would be the heart and the lungs. Heart strain would be looked for, and bronchitis and emphysema and the like.

6. Independently of age and sex and occupation, the inmates of a household would be offered a general examination of their vital organs. In presence of heart lesions, advice would be given in order to prolong the duration of compensation, and to limit the calls made on the heart, so as to give it only so much work as it could properly perform.

7. In old persons attention would be paid to the condition of the arteries in relation to apoplexy, and to parts likely to be attacked by cancerous disease.

Although, Dr. McVail continued, periodical medical examination did not commend itself at that time to the Royal Commission, there had since been remarkable development on the indicated lines. Infant welfare, child welfare, school medical inspection and treatment carried out the principle as regards the young, although the work was not done by the family medical attendant but by school doctors and nurses. As to adult life, progress was now being made. In America several of the large life insurance companies provided for periodical medical inspection of their clients, not on grounds of benevolence, but of economy and finance. It profited them to defer death so that premiums might continue and payment of the life policy be postponed. During the administration of President Roosevelt the system was introduced into the army in respect of commissioned officers, and was reported to be of great value in conserving health. A circular issued by the U.S. War Department in 1921 urged the necessity of the examinations being carried out with thoroughness and attention to detail, so as to enable the Department "to apply practically, on a large scale, the principles of disease prevention and health preservation." The important question, Dr. McVail admitted, was the qualification of the average medical attendant to make skilled examination for the very beginnings of disease. No doubt different skill would be possessed by different men, but if such a system were set on foot there would be steady improvement in fitness for the work. The whole medical curriculum has now been revised with the definite object of permeating the entire period of study by the principle of prevention; every subject from applied physics, chemistry, biology, and anatomy up to the clinical courses is to be taught with a view to the maintenance of health as well as the cure of disease. Teachers desiring to develop a new orientation may find a better field for instruction in the outdoor department or dispensary than in the hospital ward. Dr. McVail concluded by reiterating his opinion that no sphere of medical work was more certain to be helpful in the preservation of health and the prolongation of life than the periodic examination of individuals—of course, with their free consent, the adult for himself, the parent for the child.

INJURIES OF THE SPINAL CORD AND CAUDA EQUINA.

THE Second Report of the Committee upon Injuries of the Nervous System, appointed by the Medical Research Council to deal with and collate the results of experience in this field during the late war, has just been published.[1] Its subject material is the symptomatology and treatment of injuries to the spinal cord and cauda equina. Introductory sections on the applied anatomy and physiology of the spinal cord are followed by a précis of examinational methods and by comprehensive chapters on diagnosis, pathology, and treatment respectively. The report is brought up to date, so to say, by a final section on prognosis, in which it is stated that some 36 patients have been heard from recently, comprising 15 cervical, 19 thoracic, and 2 cauda equina cases of injury. From a consideration of these the conclusion is drawn that "little useful recovery of conduction in the cord, at least so far as voluntary motor power and voluntary sphincter control are concerned, is to be expected after the lapse of a very few months, although long after that time improvement in function can be brought about by physiotherapy, mechanical aids, and the many methods of re-education and training." During the war our knowledge of the functions of the spinal cord was materially increased by a study of the phenomena resulting from section of the cord by high-velocity projectiles. We learned that old chapters on the clinical sequelæ of total transverse lesions would have to be rewritten; that so far from outfall of function being a characteristic of the isolated spinal cord, it might live and express its activity by clinical signs such as the automatic bladder, involuntary reflex movements of the lower extremities, and the presence of the deep and cutaneous reflexes for these limbs. Some of these reflex movements, not specifically mentioned in the report, are of considerable scientific interest and perhaps of biological significance, in particular those associated with the sexual mechanism. We may note incidentally in passing that the report appears to have omitted reference to priapism and its treatment in its otherwise practically complete survey of the symptomatology of spinal-cord injuries. How long the isolated spinal cord is capable of functioning is possibly more of theoretical than of practical interest; it would appear, however, that there are cases where some of the lower cord segments, completely severed from the upper cord, are living in activity now, nine years after the injury. The descending degeneration that we were taught constantly set in after severe cord injuries is apparently less likely to ensue on clean-cut high-velocity lesions than with crushing lesions of the "fall of coal on the back" type. Under the term "spinal concussion" the Committee properly include cases of a definitely organic character, in which recognisable changes are to be found in the cord, while the clinical symptoms—those of spinal shock, viz., loss of motor power, diminution or loss of reflexes, impairment of sphincters, &c.—begin to disappear within a few days, or may persist for several weeks. Doubtless it is impracticable to draw any hard-and-fast line between the slight and the pronounced grades of concussion, and in not a few instances of genuine commotio (a term not employed by the Committee) the symptoms begin to clear up within some hours, not days, yet the authority of this report should help to dispel the common and erroneous idea that the familiar symptoms of a traumatic neurosis following blows or knocks on the spinal column are the result of "spinal concussion," "spinal commotion," "spinal irritability," and what not. Spinal concussion as a clinical expression is misused as much as influenza. A further point in this connexion concerns the matter of progression or otherwise of the symptoms. It is a known histopathological fact that reparative processes set in after spinal concussion; the œdema, minute hæmorrhages, focal areas of necrosis, damage to nerve cells and fibres, all eventually tend to vanish, and a perfect clinical recovery is the rule. If, accordingly, after an injury that is of quite minor degree, the symptoms not only do not clear up quickly but actually increase as time goes on, only two diagnostic alternatives are possible; either the injury has accentuated a latent organic spinal condition, recognition of which is always easy by proper examination, or else the state is a non-organic one and purely psychical, to which the injury as such has contributed literally nothing from the standpoint of ætiology. The sections on treatment, both surgical and medical, are particularly useful and thoroughgoing. Anyone who reads the paragraphs on the treatment of the paralysed bladder, bedsores, and the other distressing symptoms of spinal disease, will learn much that will help him to alleviate, if not to cure, these difficult complications. The Committee frankly acknowledge the absence of any complete solution of the problem of treatment in the matter of severe spasticity with involuntary flexor and extensor spasms; they mention the usefulness of certain drugs, such as luminal-sodium and hyoscine, but there is no reference to veronal as an antispasmodic, though it has often served in this respect. Surgical procedures (crushing the obturator nerves, resection of dorsal roots, &c.) are described without much comment on their efficacy or otherwise. The report represents the combined experience of those who are qualified to speak, and as such may be recommended to the profession at large.

BIOCHEMISTRY AT GREAT ORMOND STREET.

THE Hospital for Sick Children in Great Ormond-street has decided to allocate some recent gifts of money to the installation of a biochemical department. This was opened on Oct. 23rd, at a meeting at which the chair was taken by Mr. John Murray, who made an eloquent appeal for further funds to extend and endow the department. He was supported by Dr. G. F. Still, Dr. F. J. Poynton, and Dr. D. N. Nabarro, the last named showing some slides indicating the importance of vitamins in relation to rickets and scurvy. At the conclusion of the meeting the new department was thrown open for inspection. The necessity for the appeal became apparent on visiting the laboratories. They consist of converted rooms of the hospital, which may suffice for immediate needs, but which allow no room for expansion. The position was admirably summed up in a remark, made by a member of the honorary staff, "only an Englishman could work here." That Englishman is Dr. G. A. Harrison, the new biochemist, to whom we wish every success. With such splendid clinical material the coöperation of clinician, pathologist, and biochemist must result in great advances. That there is ample room for such is shown by the almost complete lack of chemical observations on diseases of children in the literature of this country. At the same time it is awise for the public to be directed to the biochemist the magician who will deliver them from their toils. he belief is growing that if only a man who can iggle with blood and a colorimeter can be set to ork all the insoluble problems of medicine will fade way. Every decade in the history of medicine has en associated with some specialised branch, through hich it was hoped to find the solution to most or all the problems of the day. The institution of the ience of morbid anatomy by Morgagni marked a eat advance in the knowledge of the time, with the sult that it was thought that the ultimate solution the majority of medical problems lay in the dead ouse. When the broad lines of this mode of investi- ation had been worked out, it was eclipsed by irchow's work on cellular pathology. Nothing was lked of but histological research, and it appeared that e complete medical horoscope could be cast through e microscope. This in turn was displaced by acteriology, whilst to-day biochemistry strides pidly to the front. The pioneers of all these move- ents have themselves been modest men, realising at their discoveries stand out, by contrast, as right stars against a background of ignorance. iochemistry is even now becoming a hack word, and nless a reasoned conception of its aims, objects, and robable attainments be held, the science will sink into iscredit. The public utterances of certain distin- uished pure chemists have thrown out a salutary arning. But the fact remains that the older clinical ad pathological observations stand in great need of pplement by more delicate means.

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[1] Special Report Series, No. 88. H.M. Stationery Office. 1s. 6d.

THE BANANA AS AN ACCESSORY FOOD.

THE vitamin content of the banana has already been e subject of research, and it seems to be generally greed that this fruit contains large quantities of -vitamins and a not negligible quantity of B-vitamins. here is not such unanimity of opinion with regard to he presence of A-vitamins, and it was with a view to hrowing further light on this matter that Dr. Eva opp, of the Kapp Laboratory, undertook the following ivestigations.[1] About 25 young rats, each weighing om 30 to 40 g., were put on an A-vitamin-free iet, on which they were kept till they began to lose eight and show signs of A-vitamin deficiency. After ost of them had developed advanced xerophthalmia hey were classed in three groups, each of which eceived a different ration of banana in addition to he basal A-vitamin-free diet. The rats in the first roup were given as much banana as they could eat. fter a fortnight, during which they made little rogress, rapid improvement was observed in the ondition of the eyes, which in most cases were per- ectly healthy when this experiment had lasted 10 to 2 weeks. After the rats had been on the banana diet r three weeks their general condition improved reatly, there was a uniform gain of weight, and they ere full grown by the time the experiment was rought to an end. The rats in the second group were iven only 1 g. of banana daily in addition to the asal A-vitamin-free diet. It was anticipated that his banana ration would be insufficient to restore the ats to normal health, but to Dr. Sopp's surprise the ats in this group fared practically as well as those in he first group. The rats in the third group were iven 2 g. of banana daily, and they also throve n this addition to the A-vitamin-free diet. Dr. Sopp raws the interesting conclusion that 1 g. of banana to a young rat as four or five whole bananas are to three-year old child, and that with even less than ur or five bananas a day it should be possible to rovide a young child with a sufficient supply of -vitamins. In addition to its high and varied itamin content, the banana possesses many virtues, rominent among which are its pleasant taste and igestibility. It contains from 19 to 20 per cent. of ugar and starch, and from 0·5 to 1 per cent. of fat, not to mention 4 to 5 per cent. of protein. With so much to its credit, it is to be hoped that the banana will remain within reach of the modest purse.

THE LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.

THOSE who planned the functions designed to celebrate the jubilee of the London (R.F.H.) School of Medicine for Women deserve credit for organising such a varied programme. The dinner at the Guildhall was on a grand scale, the service at St. Paul's was impressive, and the evening party at the school was just friendly. At this party, where the whole of the quadrangle of the school appeared to be enclosed in one huge marquee, and all the buildings were open to visitors, mimes and concerts and a dance were held; some of the lay visitors might have felt still colder—for it was a chilly night—if they had realised the normal occupations pursued in the room where they enjoyed the plays, grave and gay, performed by the students. Cheery greetings and nicknames were shouted across well-remembered corridors, and possibly the past students found this party where old friends foregathered the most entertaining part of the celebrations. To outsiders, on the other hand, St. Paul's Cathedral crowded so that no vacant seat could be discovered, by men and women largely in academic dress, all assembled to give thanks for opportunities of service, was an imposing spectacle. The passage in the order of service which riveted attention was as follows:—

> Through the ages there have been women in spirit born before their time. They had vision and faith, and by their toil and sacrifice, by their persistence and courage, opportunities for women in training, work and service have been won. Three Pioneers opened the doors of Medicine to Women: ELIZABETH BLACKWELL, ELIZABETH GARRETT ANDERSON, SOPHIA JEX BLAKE. With love and reverence our hearts turn to them.

The duty of commemorating these three women was the main subject of a speech delivered the night before at the Guildhall dinner by Miss L. Aldrich-Blake, the Dean of the school, when she spoke of the intention to collect money to endow university chairs in physiology, pathology, and anatomy to be named after them. Miss Aldrich-Blake paid a tribute also to those far-sighted and fair-minded men who as individuals or as members of official societies or bodies had helped generously and gladly in women's medical emancipation. The toast of Women's Work was proposed by the Dean of St. Paul's, that evening in cheerful vein, and responded to more seriously with fine delicacy by Lady Barrett and Mrs. Fawcett. Prof. E. Gardner, Vice-Chancellor of the University of London, toasted the school, and its Dean, in responding, handed to the chairman of the Royal Free Hospital a Roll containing the names of new subscribers and donors secured by past and present students during the jubilee year. It fell to Prof. Winifred Cullis to propose the most popular toast of the evening, that of the chairman, Mrs. Scharlieb, M.D., who is president of the school. Mrs. Scharlieb was a touchstone whom not to know was not to be a member of the school, for she made herself a personal friend of staff and students, and in herself combined tradition, achievement, and inspiration. The large company of medical women, students, and their guests rejoiced with loud applause at this apt expression of what Mrs. Scharlieb means to medical women, and we would join them in the hope that their illustrious president will be spared to see still greater development and prosperity of the school.

AT the recent sitting of the new Dental Board it was resolved to notify dental practitioners with addresses in the Irish Free State that the Dentists Acts no longer apply to that part of the British Dominions, and that, unless they desire to practise in places where these Acts are in force, they are not compelled to have their names retained in the Dentists Register.

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[1] Norsk Magazin for Laegevidenskaben, September, 1924.

WE learn that the 1924 Nobel Prize for Medicine and Physiology has been awarded to Prof. Willem Einthoven, of Leyden, Holland, for his discoveries in connexion with the mechanism of the electrocardiograph.

NOMINATIONS for Direct Representatives to the General Council for the period 1925–29 must be made before next Thursday, Nov. 6th. The four nominees of the British Medical Association for England and Wales are Dr. R. A. Bolam, Dr. H. B. Brackenbury, Dr. J. A. Macdonald, and Sir T. Jenner Verrall. Dr. F. H. Westmacott is standing as an independent candidate. Their election addresses will be found on p. 935, along with a letter endorsing the candidature of Sir Norman Walker as Direct Representative for Scotland.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCIV.—THE TREATMENT OF PRURITUS ANI.

PRURITUS ani is the commonest form of localised itching of the skin. It is more frequent in men than in women, and may occur in children, though its incidence is greatest in middle-aged folk of sedentary occupations and in old age when it is often associated with general atrophy of the skin. It is relatively commoner in private practice than in the hospital clinic. Pruritus ani is a subjective symptom of some general or local condition and is not a disease *sui generis*. It is therefore essential, before determining what treatment we should adopt in any given case, to discover first, if possible, its cause and then to remove it or neutralise its action.

General Causes.

Gout is, perhaps, the commonest general cause, for pruritus ani not infrequently alternates with acute attacks of gout. Rheumatism and diabetes, too, are at times responsible for its onset and should receive appropriate treatment. Disorders of the liver, constipation, and impaired digestion, due to over-indulgence in rich foods, may also be exciting factors. Constipation must be treated on general medical lines; aloes, in consequence of its irritant action on the rectum, should not be prescribed. A bland but nutritious diet is indicated. Condiments, pickles, rich sauces, and highly seasoned dishes should be forbidden. Strong coffee and alcohol, except in the strictest moderation, are contra-indicated. Certain other articles of diet—e.g., shell-fish and strawberries—appear at times to provoke attacks and are therefore tabooed. Excessive smoking should be prohibited. When the patient is in a low state of depression and the appetite poor, or there is evidence of neurosis, tonic treatment (quinine and nux vomica) is indicated, together with outdoor exercises—golf, riding, cycling, &c. If there is sleeplessness, bromides, sulphonal, or chloral hydrate may be administered cautiously. In the obviously neurotic case a straight talk may do much good, whilst in some hands hypnotic suggestion has met with marked success.

Local Causes.

Local causes are more often responsible than general ones. The commonest are: catarrh of the rectum with consequent offensive discharge, best treated by injections of warm boric acid lotion; threadworms, the commonest cause of pruritus ani in children, occasionally persist in the adult and should be removed by enemata of strong solutions of common salt or of quassia, followed, if necessary, by 2 to 5 gr. of santonin and a purgative; hæmorrhoids, which should be operated on; polypi and ulcers. Fistulæ if present should be slit up, and any cracks and fissures touched with the caustic pencil or by painting with a 10 per cent. solution of silver nitrate in spt. æther. nit. Warty excrescences should be snipped off. Excessive sweating and tumours in the rectum and pelvis which obstruct the venous circulation are possible causes, and diseases of the genito-urinary apparatus may be either the direct or reflex cause of pruritus ani. Incomplete evacuation of the bowels, and especially want of cleanliness about the anus, should be looked for. *Cleanliness* of the parts after defæcation may be procured by the removal of fæcal matter or mucous discharge with pledgets of cotton-wool moistened with water. After drying a bland dusting powder should be applied. Morning and evening washings with hot water and coal-tar soap are to be commended. The application of a sponge wrung out in hot water sometimes has a very beneficial effect and may procure a night's repose.

Pruritus ani is often very resistant to treatment, but most cases are curable if taken in hand early and if the cause be located. The ailment is too often looked on as a trivial matter. If treatment is delayed until the skin has become indurated, excoriated, and sodden, then, even though the cause be removed, the itching will persist, since the nerves remain in an excitable state due to the pressure exerted on them by the fibrosed skin. It is imperative, therefore, that a careful general and local examination be made before any method of treatment is instituted. Not until after such an examination has been made are we justified in classifying a case as neurotic. The neurosis may be induced by the pruritus ani and the cause still be active though unrevealed. Each case must be dealt with in accordance with the findings and with the idiosyncrasy of the patient.

Persistent or Residual Itching.

Having removed the apparent "cause" without relieving the symptoms, or having failed to find any general or local pathological condition, we are left with the further treatment of the patient. There are many vaunted remedies, but the most expert physician cannot invariably foretell which, if any, will benefit the case in hand. It is necessary to proceed with patience and caution. Whether ointments or lotions will afford the greater relief is impossible to foretell; in spite of statements to the contrary, ointments are frequently of the utmost service.

Carbolic acid often acts like a charm. It may be used as a lotion (1 in 80) or as a liniment (1 in 20 of olive oil), and compresses soaked in these applications used as the symptoms demand. It may be combined with sodium hyposulphite in a lotion, or with cocaine or mercury in ointment or lotion form—e.g., Acid. carbol., gr. xv.; cocainæ hydrochlor., gr. x.; paraffin. moll. ad ℥i. Acid. carbol., gr. xii.; cocainæ hydrochlor., gr. x.; aq. laurocerasi, ʒiii.; aq. rosæ ad ℥i. Acid. carbol., gr. xx.; hyd. perchlor., gr. ii.; ol. lini., ʒi.; paraffin. moll. ad ℥i.

When the itching is intense or when it extends within the rectum, a half grain *cocaine suppository* affords untold relief, but such treatment should be cautiously adopted, especially in a neurotic patient. I have found the ung. gallæ cum opio equally efficient.

Cycloform ointment (5 per cent. with lanoline base) and 5 per cent. *anæsthesin* ointment are also helpful.

Tar has its advocates. The sapo carbonis detergens is desirable for washing the parts and the liq. carb. deterg. or the liq. picis carb. ʒii.–ʒiv. to the pint of water as a lotion. In an ointment combined with mercury and salicylic acid I have found it most useful—e.g., Acid. salicyl., gr. xv.; liq. picis carb., ♏xx.; hydrarg. ammon., gr. xv.; paraffin. moll.; adipis lanæ hydr., āā ℥ss.

Mercury is the most useful antiseptic, either in an ointment (calomel ʒss. ad ℥i. of vaseline or hydrarg. ammon., gr. xv. ad ℥i. of benzoated lard) or in the following lotion: Hydrarg. perchlor., gr. iii.; glycerini, ʒv.; aq. chloroformi, ad ℥x. After the morning toilet calomel in powder may be dusted on the parts.

or, better still, rubbed into the affected region by the patient. After the daily evacuation of the bowels the patient is instructed to clean and dry the parts and then to rub in 20 gr. of calomel. Such treatment, repeated for a few days, has in some instances produced most gratifying results.

Various means may be adopted for reducing the thickening of the peri-anal skin. *Salicylic acid* (6 per cent. in 50 per cent. alcohol) may be used as a paint. Twenty-second applications of *solid carbon dioxide*, with a simple protective ointment afterwards, may also be used. Carefully painting the parts with pure carbolic acid and applying Lassar's paste to the raw surface resulting from the subsequent exfoliation is an easy and convenient method. A more drastic means, necessitating a general anæsthetic, advocated by Mitchell Banks, is the use of the actual cautery to effect a superficial burn. The operation is followed by the use of the lotion of bicarbonate of soda (1 in 8) as a soothing medication and the application of zinc cream. These latter methods necessitate keeping the patient in bed till the parts are healed, and I seldom resort to them.

X Rays.

Radiation by means of the X rays I now use as the routine method of treatment for pruritus ani. Not only have the rays a marked anti-pruritic action, but they also reduce induration of the skin. X rays seem to have entirely superseded surgical division of the nerves, and not a few cases which have recurred after operation have remained permanently well after but a few exposures to the X rays. The treatment should only be undertaken by a careful and competent radiotherapeutist, for over-exposure will produce a far greater evil and bring a valuable therapeutic agent into undeserved condemnation. Four unfiltered doses of a half pastille each are given at fortnightly intervals, and then after a month's rest two further exposures if necessary. The surrounding parts should, of course, be efficiently protected. An antiseptic ointment or lotion is prescribed when the circumstances demand.

The high-frequency *electrode* has proved efficient in some neurotic cases. Dr. J. M. H. MacLeod speaks well of *zinc ionisation* where superficial abrasions are present. The ionisation has definite astringent and anti-pruritic properties. MacLeod describes the procedure as follows: "A piece of lint the size of a penny is soaked in 2 per cent. sulphate of zinc solution and applied to the affected skin, the positive pole of the battery with a solid zinc electrode is pressed against the lint, while the negative electrode is held by the patient, and a current of a few milliampères is passed for ten minutes."

Vaccines.

Some few years ago the late Dr. D. H. Murray, of Syracuse, N.Y., met with considerable success by the use of autogenous vaccines made from the *Streptococcus fæcalis*. His results have been confirmed by other American observers, but this treatment has not met with much approval in this country. Latterly, however, Dr. C. E. Jenkins, of Manchester, has adopted it with favourable results in a small series of patients. Dr. Jenkins gives seven injections at weekly intervals, using a residual vaccine. This method seems worthy of further trial in obstinate cases. It should not, however, be adopted before all other pathological conditions have been excluded.

LOUIS SAVATARD, L.S.A. Lond.,
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EASTBOURNE EAR, NOSE, AND THROAT HOSPITAL.—At the annual meeting of this institution on Oct. 24th the governors reported that the reserve fund had been increased to £1750. The needs of the hospital were growing. During the year the number of out-patients was 2257 and the in-patients 268. The number of operations performed was 245. The balance-sheet showed a balance to be carried forward of £120. Mr. T. Garton Jenkins was re-elected president.

Special Articles.

ON THE QUESTION OF BIRTH CONTROL IN SOME OF ITS STATISTICAL ASPECTS.

BY JOHN BROWNLEE, M.D., D.SC. GLASG.,
DIRECTOR OF STATISTICS, MEDICAL RESEARCH COUNCIL.

I PROPOSE in this paper to examine some of the statistics relating to population in England and Wales. This population is at present tending to become stationary. Prof. Bowley has recently shown that with a birth-rate equivalent to the average of the three years 1921–23 and a death-rate similar to that in 1911, the population will attain a maximum about 1971 and thereafter slowly decline, the maximum for Great Britain being 49,000,000 as against 42,700,000 in 1921. It is unlikely that this maximum will be attained as it is most probable that the annual number of emigrants will be at least 120,000, in which case a maximum population at a lower level may be reached in the course of 15 or 20 years.

The discussion falls under three headings: (1) the relation of a high birth-rate to infantile mortality; (2) the age at marriage in relation to fertility; and (3) how far the fall in fertility in the last 50 years has reduced the chance of the country becoming more seriously over-populated than it is at present.

Relation of High Birth-rate to Infantile Mortality.

The question of the relation of the infantile mortality to the birth-rate has been the subject of inquiry by a number of statisticians. Of these it is only necessary to refer to Dr. Major Greenwood.[1] In his paper on this subject in 1912 he shows that the correlation between the infantile mortality and the birth-rate varies very largely according to the method in which the calculations are made. Thus if the crude birth-rate is taken, the correlation is 0·81; if the birth-rate is based upon all women between the ages of 15–45 years it falls to 0·64; if it is based upon wives aged 15–45 years it becomes 0·53, while the corrected birth-rate, as given by Stevenson and Newsholme, gives a correlation of 0·36. He also found, taking the birth-rates based on all women at the ages 15–60 years in districts of Bavaria, that the correlation was 0·68. Dr. Greenwood, however, in this paper was investigating certain social problems and not making a special inquiry into the actual influence of infantile mortality on fertility or the reverse.

I am doubtful whether there is any real relationship between infantile mortality and fertility. Of course, it is probable that a high infantile mortality, by limiting the duration of nursing may permit a few extra births, but even supposing that the infantile mortality were 200 per 1000, the increase in the number of births due to this would be at most somewhere in the neighbourhood of 1 in 10 and the differences found in different districts are very much greater than this. To investigate the relationship is, however, difficult in the sense that the fallacies due to the use of any known method have not been sufficiently examined. Further, it is necessary to select data which are not open to the suspicion that restriction of birth is being practised. If present-day statistics were chosen, as there must be more restriction of births among the better classes, where the infantile mortality is low, a correlation between high fertility and high infantile mortality would at once be obtained. To use such figures is to work with loaded dice. To avoid this difficulty I have gone back to the statistics of 1871, when the birth-rate of England was about its maximum and when figures may be said to be free from the objection just noted.

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[1] Greenwood, M., and Brown, J. W.: An Examination of Some Factors Influencing the Rate of Infantile Mortality, Journal of Hygiene, 1912, xii., No. 1.

I have confined the inquiry to districts north of the Humber and the Dee because the infantile mortality south of this region obeys a different law, and if the south of England were to be considered it must be taken by itself. The northern counties referred to contain 131 registration districts of very varied character, the infantile mortality varying from 78 to 220, a very wide range. The crude birth-rate, that commonly taken as the measure of the fertility, is here of no use because the towns of these districts in 1870 contained a very high percentage of young married women. The proportion of legitimate births to the married women between the ages of 15 and 45 years is a better guide, but requires correction, as the proportion of young married women to older married women at child-bearing ages varies very markedly from town to country. The application of a fertility factor as advocated by Stevenson and Newsholme gives a better measure, but the consequences of using this fertility factor have not yet been thoroughly worked out. Two sets of fertility-rates are known for this country, that for the cities of Glasgow and Edinburgh, given by the Registrar-General for Scotland and used by Dr. Matthews Duncan for the year 1855, and that given for Aberdeen for the Census year of 1911 by Dr. M. Hay. In association with these may be placed the Swedish fertility-rates used by Stevenson and Newsholme. The three sets of figures are given in Table I. The figures measure the chance that a married woman at each age bears a child within a year. It will be noticed that among married women between 15 and 20 years of age the fertility in the three sets of figures is the same, but the rate of decline with age differs considerably. Prof. Tait long ago noticed that the rate of decline in fertility follows very closely a straight line, and for purposes of calculation it may probably be taken as a straight line without introducing any very serious error. To use fertility ratios, the numbers of married women at each age-period were taken out for each registration district in the region indicated and also the numbers of legitimate births for the three years 1870, 1871, and 1872. The fertility figures of Dr. Matthews Duncan were multiplied into the corresponding numbers of married women and the theoretical number of births calculated and compared with the average number of births in the three years in question. The ratio of the actual births to the theoretical was then calculated, and this ratio I call for the purpose of this paper the "fertility ratio."

TABLE I.—*Fertility-rate among Married Women at Different Age-periods.*

Age of the mother.	Edinburgh and Glasgow, 1855. (Dr. Matthews Duncan.)	Aberdeen, 1911. (Dr. Hay.)	Sweden, 1911.
15–19	0·5000	0·5000	0·5181
20–24	0·4179	0·3740	0·4514
25–29	0·3464	0·3250	0·3753
30–34	0·2656	0·2060	0·3118
35–39	0·2039	0·1450	0·2504
40–44	0·0804	0·0690	0·1423
45–49	0·0127	0·0080	0·0200

Secondly, as the decline of fertility in these three cases is very nearly a straight line, and as its starting value is the same, it has been assumed that this holds in all districts. Thus, if the fall in fertility with each period of five years be denoted by D, the fertility between 15 and 20 years is taken as 0·50, that between 20 and 25 years becomes 0·50 −D, between 25 and 30 years, 0·50 −2D, and so on. Applying these ratios to the number of married women and comparing with the number of births, it is easy to obtain the value of D for each district. This value I call for the purpose of this paper the "fertility constant."

Other factors, however, come into this inquiry. One of these is the density of population. This has been measured in the calculations by the logarithm of the number of acres per person in each district, as it is found that this measure gives linear regressions. Another factor already referred to is the proportion of young married women to those married at fertile ages. This has been measured by taking the proportion between 15 and 25 years to the total number of married women between 15 and 45 years. It would have been more satisfactory to have made the division at 30 years, but the statistics for this age are not available. A third important factor is the proportion of married women at fertile ages to the whole population.

We are now in a position to examine the results obtained under these conditions and to discuss thereafter what trust is to be placed in their accuracy. Taking the "fertility ratio" measured as described above, it is found that the correlation between this and infantile mortality is high and negative, being equal to −0·497, that between the infantile mortality and the "fertility constant" as described above, −0·301, while that between the ratio of the births to the married women between 15 and 45 years of age and infantile mortality is +0·248. These different methods thus give very various answers. Both the infantile mortality and the fertility are, however, very highly correlated with the number of acres per person. This factor determines both high infantile mortality and low fertility, the correlation being, respectively, −0·855 and +0·619. It may be noted that this relation of density of population to fertility is in exact accordance with Prof. Pearl's experiments with the fruit-fly *Drosophila.*[2] When the partial correlation coefficient between the fertility and the infantile mortality, keeping the logarithm of the acreage per person constant, is calculated, a coefficient of +0·08 arises. Another measure of the degree of urbanisation is the proportion of married women between 15 and 45 years of age to the total population. If, then, the fertility and infantile mortality are correlated, keeping the proportion of married women constant, the partial coefficient of correlation becomes −0·11. Taking next the "fertility constant" and infantile mortality and making density constant, a correlation coefficient of +0·19 is obtained. The remaining correlation—namely, that between the proportion of births to married women at fertile ages and infantile mortality—changes in the same way. Here the disturbing factor is the proportion of young married women to the whole married at fertile ages, the proportion in the country being considerably lower than in the towns. When this factor is made constant the correlation coefficient becomes −0·13 (Table II.). Thus, with three different measures

TABLE II.

First correlations.	Partial correlations.	First correlations used in calculating partial correlations.
	$r_{FI.M} = -0{\cdot}11$	$r_{-DA} = +0{\cdot}455$
$r_{FI} = -0{\cdot}497$		$r_{MI} = +0{\cdot}772$
	$r_{FI.A} = +0{\cdot}08$	$r_{FM} = -0{\cdot}569$
$r_{-DI} = -0{\cdot}301$	$r_{-DI.A} = +0{\cdot}19$	$r_{IA} = -0{\cdot}855$
$r_{BI} = +0{\cdot}248$	$r_{BI.W} = -0{\cdot}13$	$r_{MA} = -0{\cdot}799$
		$r_{FA} = +0{\cdot}619$
		$r_{WI} = +0{\cdot}622$
		$r_{WB} = +0{\cdot}539$

A = Logarithm of the number of acres per person.
I = Infantile mortality.
B = Ratio of births to married women aged 15–45 years.
F = Fertility ratio.
D = Decline for five-yearly period in fertility: to be measured as −D.
M = Proportion of married women at fertile ages to total population.
W = Proportion of wives under 25 years of age to the whole married women at fertile ages.

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[2] Pearl, R., and Parker, S. L.: On the Influence of Density of Population upon the Rate or Reproduction of Drosphila, National Academy of Sciences, vol. viii., No. 7, pp. 212–219.

of fertility, when certain corrections are made, the four values of the partial correlation coefficient are all in the neighbourhood of zero, which is the value of the average. It may thus be said that the connexion between fertility and infantile mortality is at least very small.

This result is, I think, important. It strikes straight at one of the arguments for limitation of a family—namely, that it is better, say, to have three or four healthy children than five or six unhealthy. Conditions being equal, the size of the family has nothing to do with the infantile death-rate.

The Age at Marriage in Relation to Fertility.

The next point to be considered is how far fertility has been influenced by the age of marriage. This I discussed recently in THE LANCET,[3] but take the advantage of using the figures of the 1921 Census to bring the matter up to date. It is commonly stated that at the present moment the age of marriage has risen. To test this I have taken the percentages married at the different age-periods in the 1911 Census and applied these ratios to the numbers of women living at each age-group registered in the 1921 Census. It will be seen that if the numbers married between 15 and 30 years had been as in 1911, there would have been 1,337,100 married women between 15 and 30 years of age, whereas the number enumerated was 1,411,900, the latter being much in excess. In the same way the corresponding figures for married women between 30 and 45 years is 3,214,900, as against 3,184,000. The figures for each age-group are given in Table III. Thus, instead of the population at the present moment having a higher age at marriage it has a lower. Consequently, this factor does not come in as producing a decline in the birth-rate.

TABLE III.—*Numbers of Married Women in Hundreds Estimated on the Theory that the Percentage at Each Age Married in 1911 was Maintained and those Actually Found by Enumeration.*

TABLE IV.—*Numbers of Married Women in Hundreds in the Life-Table Population of 1911, the Total Population being Taken as 36,000,000.*

III.				IV.		
Age.	1911.	1921—		Age.	Total.	Population of females married.
		Theoretical as in 1911.	Actual.			
15–19	201	212	311	15–19	13,838	165
20–24	4,041	4,114	4,597	20–24	13,638	3,294
25–29	9,064	9,045	9,210	25–29	13,410	7,487
30–34	10,570	10,694	10,595	30–34	13,140	9,251
35–39	10,154	11,056	10,893	35–39	12,807	9,619
40–44	8,735	10,399	10,351	40–44	12,397	9,355

The Birth-rate in Relation to Population.

The number of births which might be expected from the population of 1921 now falls to be considered. Using the fertility figures employed by Dr. Stevenson and Sir Arthur Newsholme in their investigations—namely, those for Sweden in 1891, figures which closely represent the facts in England in 1871—there should be 1,338,000 legitimate births. Taking Dr. Hay's figures for Aberdeen in 1911, the number becomes 942,000. The average actual number of legitimate births for the three years about the Census is 800,000, but for the year 1923 the births only numbered 727,000. The ratio of the present fertility of England to that of England in 1871 is thus 0·55. The fall in the birth-rate is still going on, for the number of legitimate births in the first two quarters of 1924 is 372,000, as against 390,000 last year.

It now remains to consider the distribution of a birth-rate necessary to maintain a stationary population. For this the determination of the "fertility constant" seems to be the only method. When the "fertility constant" is determined with the number of births in 1923 and applied to the Census population of 1921, it is found to be 0·105 in place of 0·060 in 1871. We thus apply fertility-rates, 0·500, 0·395, 0·280, &c., at the successive age-periods.

Let us now consider a life-table population. The necessary data are contained in the life-table for 1910–1912, calculated by Mr. King. The total population has been assumed to be 36,000,000, as in 1911. Assuming the same marriage constitution of the population as in 1921, the number of married women at each age has been calculated (Table IV.). The application of the fertility-rates given at the end of the preceding paragraph to this life-table population of married women gives 607,000 legitimate births. To this total the proportion of illegitimate births has to be allowed for, raising this number to 632,000 births. The number of births required to maintain a constant population of 36,000,000, which is a life-table population in the health conditions of 1911, is 675,000, so that the fertility of 1923 would not suffice to maintain the population on the basis of health of 1911. The infantile mortality has fallen, however, very considerably. Taking a very liberal allowance in this regard by assuming that the infantile mortality may be taken as 60 in place of 120, as in 1911, a smaller number of births will suffice to maintain the population. As a matter of fact, with this allowance it works out at 632,000, the exact figure just obtained.

The difficulties of the future in this country are very great. Without emigration the population is bound to increase for a time, and with 1,000,000 people out of work that seems a very serious prospect. But if the fertility declines much further, a more serious problem will ultimately arise. Nothing like a stationary population in the life-table sense can, of course, be expected for a very long period. At present a larger elderly population requiring maintenance is steadily accumulating, while there is a smaller proportion of persons at working ages. The prospect instead of being one which tends to a higher standard of living, would seem almost necessarily to lead to a lower.

Conclusion.

The results of this investigation are, I think, three.

1. When the data are taken before restriction of birth became a practical factor, there is no evidence that large families were more unhealthy than small ones, and the statement that it is better to have three healthy children than six unhealthy ones has no apparent foundation.

2. That in place of marriage taking place at a higher age, it has, probably due to the war, taken place at a lower age than in 1911, so that the population is in a more favourable condition for the production of children now than then.

3. That in place of this being the time for preaching control of birth, the opposite is the case. The time for preaching birth control has passed. Whether due to birth control or not, and I think the much larger part of the fall is due to race physiology, the birth-rate has reached the level required, and any further fall will very seriously endanger the national life.

MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Princes', Sandwich, on Oct. 18th and 19th. Seventy members took part in the competitions, and the meeting was a very successful one. All competitions were played under handicap. The results were as follows: Best Return *v.* Bogey (cup presented by Mr. Ernest Clarke, the President): T. H. P. Kolesar, C. Ilott, and C. E. Finny, all square; won on replay by Mr. T. H. P. Kolesar. Foursomes *v.* Bogey (prizes presented by Dr. J. Grace): E. Ravensworth Hart and H. W. Carson, and H. D. Gillies and W. H. Lamplough; won on replay by the first-named couple. Canny Ryall Cup (Medal play): H. D. Gillies, 72 + 2 = 74; G. S. Moriarity, 87 – 8 = 79.

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[3] THE LANCET, 1922, ii., 223.

THE STAR AND GARTER HOME

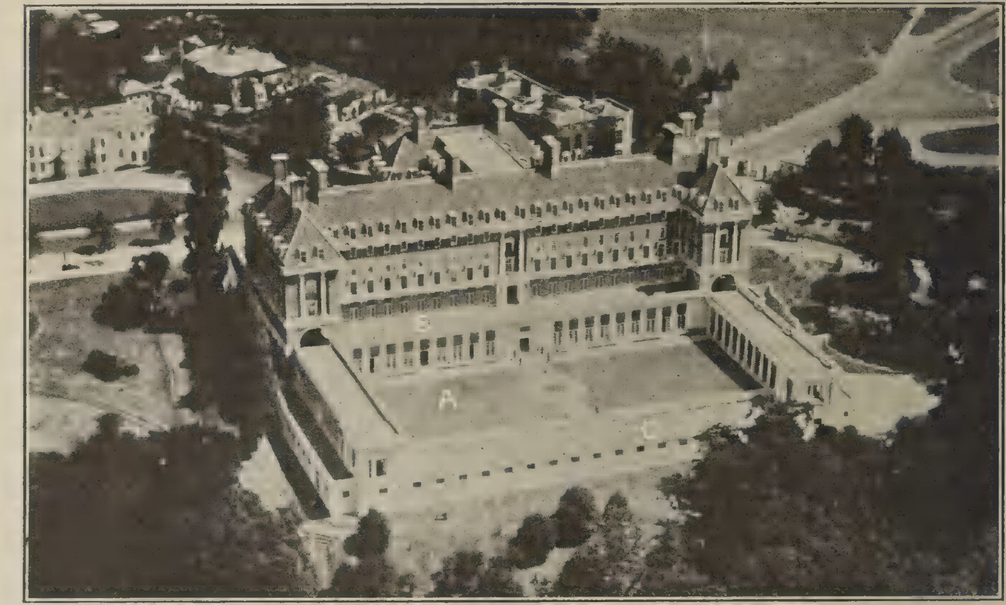
FOR DISABLED SAILORS AND SOLDIERS.

(By a Special Correspondent.)

This beautiful Home, in its unrivalled position on the banks of the Thames at Richmond, Surrey, has been built to provide comfortable, it may almost be said sumptuous, accommodation for some 180 disabled and paralysed men of the Services. It has taken six years to build. The money for the site was found by the Auctioneers and Estate Agents' Institute, and for the building by the British Women's Hospital Committee. It is maintained by an endowment fund formed by contributions from the "Women of the Empire." It is thus the "Women's Memorial of the Great War." Sir Edwin Cooper, the hon. architect, has built for these poor fighting men, broken in the wars, a palace rather than a mere hospital, and he has kept ever in view the needs of the stretchers, beds, and wheeled chairs, to which so many of the inmates are condemned for life, by providing wide doors, uninterrupted floors, broad bed terraces, and so on. The main entrance is at the Richmond Gate of Richmond Park, and opposite to it is Ancaster House, which has been remodelled within to be a nurses' home at one end, and at the other a residence for the commandant, Lieut.-Colonel E. L. Gowlland, R.A.M.C.

On the upper ground-floor is the 24-foot wide memorial entrance-hall, which runs through the building to the bed terrace; polished slabs of Italian marble from Subiaco form the floor and walls, the roof being supported on 14 monoliths of the same material. The great marble staircase opens off the hall to the right, while on the left will stand the marble group, "Patriotism Recording Sacrifice," below three coloured windows representing St. George, Faith, and Charity. On each side of the hall are electric automatic lifts to carry beds, and beyond are two lofty 18-bed wards, about 40 ft. by 80 ft., giving plenty of space for nursing. Each man has a bed-table with a second shelf and two drawers. The beds have 8-inch rubber-tyred wheels at the head end, and handles at the foot, hinged to fall and be out of the way when not required, so that the nurse can easily wheel a patient to and from the bed terrace, even if a water-bed is being used. There is direct access to the terrace through wide casement doors. Each patient has his own bell, ringing to the nurse's room, and is provided with an electric-light switch and an overhead bed-lift. There is a power circuit plug by each bed to facilitate electrical treatment. The ward lavatories are on the north side, projecting into an inner court, and cross ventilation of the ward has been arranged. The south side of the ward opens in its entire extent on to the bed terrace, 21 ft. wide and 220 ft. long, whence the renowned view over the Thames valley can be enjoyed in fine weather. On this upper ground-floor also, on either side of the entrance-door, there are, to the right, the matron's office, diathermy, electrical, and other treatment rooms, the X ray department, the operating theatre, the clinical laboratory, and a ward of four beds with its annexes. On the left are the administrative offices, the dispensary, and another ward of four beds. On the north there is a mezzanine floor for staff dining rooms, stores, telephone exchange, and quarters for the steward and engineer.

The Star and Garter Home, Richmond.



The Chapel (c) is seen in the foreground with the Garden Terrace (A) behind and the Bed Terrace (B) looking down upon it.

[*Photo by Aerofilms, Ltd.*

Below this is the lower ground-floor, where are the patients' dining-room, 94 ft. by 54 ft., and 20 ft. high (giving ample space for each patient, though so many are in wheeled chairs), and the common room of similar size facing south-west and opening on to the garden terrace lawn, which lies between protected colonnades or loggias. In the servery attention was directed to a convenient handle for the larger table-drawers, a wooden bar running nearly the whole length, so that the drawer can be opened either with one or both hands, the bar serving also as a towel rail. Adjoining the common room, which is supplied with newspapers, there are a canteen and a library containing already over a thousand books. At the outer corner of each of these rooms is a cosy "quiet" room, as comfortable and well furnished as the members' smoking room in a good club. The northern side of this floor is occupied by stores, &c. The main kitchen, measuring 50 ft. by 50 ft., has a great floor space and is well equipped, well lighted, and thoroughly ventilated. In the sculleries teak sinks are used to diminish breakage of crockery. They are said to give satisfaction, and to be no harder to clean than the usual fire-clay pattern. Below the garden terrace to the left front of the Home is the Cowdray Memorial Chapel, given in remembrance of Lord Cowdray's son, killed in the war. It is in marble, with an ever-open grille in the door allowing a glimpse of the altar from the outside. On the ground-floor there is also a recreation room with a billiard table, in which kinematograph exhibitions may be held, further the Zander room with mechanical massage and exercising machines, and beyond these are the workshops for employing such patients as may be possible. On this floor also are the mortuary and the post-mortem room. There is a garage for patients' hand-wheel and motor bath-chairs; on the day of my visit one, electrically propelled, had just been received. The boiler room contains two Lancashire boilers, coke-fired, for the heating of the establishment. All water is softened (Permutit system) and there are calorifiers in two sets, one providing hot water for the lavatory supply, the other for the radiators throughout the building.

On the first floor are the residential quarters of the matron and the secretary, and a sitting-room for nurses. The rest is for the accommodation of patients, mostly in single rooms, each of which is supplied with a fixed basin. The second and third floors are wholly devoted to patients. The fourth floor is entirely for the accommodation of the staff. Here in quiet are the rooms for the night nurses, the others having their rooms in Ancaster House, across the road, where they have a garden and tennis-court. As the patients demand much nursing the nursing staff is large. On the fifth floor is an isolation and observation ward. Ventilation has been most carefully considered. The entire building is of fire-proof construction. The furniture and cabinet work throughout is of Japanese oak, designed by the architect, highly finished, and most comfortable. Electric lighting is taken from the local supply company.

In inspecting a hospital it is often rather hard to be sure of the quality of the meals, but your correspondent got an eminently satisfactory statement from one of the patients: "The boys are tickled to death at the food, they never get the same thing twice." The profession may rest assured that here is, in fact, a worthy home for heroes.

PRESERVATIVES IN FOOD.

FINAL REPORT OF THE DEPARTMENTAL COMMITTEE.

IN July, 1923, Mr. Neville Chamberlain, then Minister of Health, appointed a Committee to inquire into the use of preservatives and colouring matters in food, and to report—(1) Whether the use of such materials, or any of them, for the preservation and colouring of food, is injurious to health, and, if so, in what quantities does their use become injurious; (2) whether it should be required that the presence of such materials, and the quantities present, in food offered or exposed for sale should be declared.

The members of this Committee were: Sir Horace Monro (chairman), Prof. W. E. Dixon, M.D., F.R.S., Sir David Hall, F.R.S., Dr. J. M. Hamill, Mr. O. Hehner, F.I.C., Prof. F. G. Hopkins, M.B., F.R.S., Dr. G. R. Leighton, Dr. A. P. Luff, Dr. C. Porter, Mr. G. Stubbs, F.I.C., with Mr. A. M. Legge, of the Ministry of Health (secretary). Mr. P. A. Ellis Richards, F.I.C., later took the place of Mr. Hehner.

This Departmental Committee issued an interim report[1] on the treatment of chilled beef and other foods with formaldehyde, and has now brought in its final report,[2] which is unanimous except in one small particular.

The Committee met on 41 days and heard oral evidence from 101 witnesses, including medical officers of health and public analysts, physicians, pharmacologists, pathologists, chemists, and a great number of persons connected with the trades which would be affected by any restrictive action in connexion with the use of preservatives or colouring matters in food, including manufacturers, importers, wholesale dealers, and retailers.

Recommendations of the 1899 Committee.

In 1899 a Committee was appointed by Mr. Chaplin, then President of the Local Government Board, with Sir Herbert Maxwell as chairman, to inquire into the use of preservatives and colouring matters in food and their effect on health. The report of this Committee was issued[3] in 1901 (Cd. 833). The preservatives then stated to be in use were very much the same as those now employed in this country, viz.: Boric or boracic acid and borates, Sulphurous acid and sulphites, Fluorides (to a very limited extent), Benzoic acid and benzoates (to a very limited extent), Salicylic acid, Formalin or formaldehyde.

The recommendations which this Committee made were as follows:—

(*a*) That the use of formaldehyde or formalin, or preparations thereof in foods or drinks be absolutely prohibited, and that salicylic acid be not used in a greater proportion than 1 gr. per pint in liquid food and 1 gr. per pound in solid food. Its presence in all cases to be declared.

(*b*) That the use of any preservative or colouring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drugs Acts.

(*c*) That the only preservative which it shall be lawful to use in cream be boric acid or mixtures of boric acid and borax, and in amount not exceeding 0·25 per cent. expressed as boric acid. The amount of such preservative to be notified by a label on the vessel.

(*d*) That the only preservative permitted to be used in butter and margarine be boric acid or mixtures of boric acid and borax, to be used in proportions not exceeding 0·5 per cent. expressed as boric acid.

(*e*) That in the case of all dietetic preparations intended for the use of invalids or infants chemical preservatives of all kinds be prohibited.

(*f*) That the use of copper salts in the so-called greening of preserved foods be prohibited.

(*g*) That means be provided either by the establishment of a separate Court of Reference or by the imposition of more direct obligation on the Local Government Board to exercise supervision over the use of preservatives and colouring matters in foods, and to prepare schedules of such as may be considered inimical to the public health.

The report was unanimous save that one member of the Committee considered that an amount not exceeding half a grain of metallic copper per pound might be permitted in preserved vegetables, its presence being in every case declared.

Action Taken in Other Countries.

The report summarises in general terms the action taken in different countries with regard to different preservatives:—

(i) Every country or State which has legislated on the subject of preservatives prohibits the use of fluorides and formaldehyde as preservatives.

(ii) Boron preservatives are absolutely prohibited by the United States of America and by Sweden. They are permitted specifically, in certain dairy products only, in Australia, New Zealand and Canada, while their use is apparently tolerated to some extent in Holland.

(iii) Sulphur dioxide is prohibited in meat or meat products in every country whose laws and regulations we have had the opportunity of studying, except in New Zealand and in the draft regulations which have been recently under consideration by the States of the Australian Commonwealth, where it is allowed in minced meat and certain meat preparations. The restrictions are generally less severe in the case of the preservation of fruits and fruit products, and sulphur dioxide is commonly permitted in wine, beer, cider and non-alcoholic drinks in limited amounts.

(iv) Benzoic acid is rarely referred to, but is permitted generally, subject to declaration, under the Federal law of the United States; in Canada except in meat and subject to a limit of 1 part in 1000 and to declaration of its presence; in Australia in the same quantities and products as sulphur dioxide; in Denmark in sausages, and in Uruguay in canned meats and meat products.

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[1] THE LANCET, August 16th, p. 329.

[2] H.M. Stationery Office. 1*s*. 6*d*.

[3] THE LANCET, 1901, ii., 1682.

(v) Salicylic acid is permitted in a few instances, sometimes as a substitute for sulphur dioxide, in concentrations varying between 1 in 5000 and 1 in 3500.

No country, except Japan and certain of the United States of America, is absolutely intolerant of preservatives of any kind in all foods, but the extent to which preservatives are limited by law seems to indicate that the problem of keeping foods without resort to chemical preservatives has not been generally found to be insoluble. As regards colouring matters copper is prohibited in green vegetables in the United States of America, and in Australia, Canada, and New Zealand; under the laws of other countries which deal with the subject the amount permitted is generally limited to one part in ten thousand, equivalent to 0·7 gr. per pound. Switzerland and Japan have published lists of prohibited colours, and Belgium lists both of prohibited and of permitted colours. Other countries, including the United States of America, Uruguay, Sweden, Canada, Italy, Spain, France, Denmark, the Australian States, and New Zealand, have issued lists of permitted colours, with power to add to the lists. The number of synthetic colours permitted varies between 10 permitted by New Zealand and 21 allowed under the French law.

General Principles.

The report starts from the basis of three propositions, considered to be generally accepted: (1) That it is undesirable to add to articles of food any material not of the nature, substance, and quality of food; (2) that if for commercial or other reasons the addition is necessary, it should be limited to the minimum required to effect its purpose; (3) that if it can be shown that some of these materials are less undesirable than others, preference should be given to the employment of the less undesirable materials.

Definition of Preservative.—In the term "preservative" the Committee does not include salt, saltpetre, sugar, vinegar, acetic acid, alcohol and spices, or the minute quantities of preservative agents introduced by the process of curing known as "smoking," nor does it include substances which, though they may have some preservative properties, are added to food for other than preservative purposes, and in the amounts in which they may be used in food possess preservative properties in so slight a degree that they cannot be regarded as commercially practicable preservatives. The term "preservative" is interpreted in the report as including every other substance which when added to food has the property of preventing, arresting, delaying, or masking fermentation or putrefaction of food.

The first proposition stated is self-evident. The report deals in succession with the question of the possible risk to health from the chemical action on the human body of the substances employed as preservatives. Apart from such risk these substances may mask unsoundness in food or be a cloak for careless or inexpert methods of production, storage, or distribution. It is recognised that the problem is not simple. Great Britain is in some ways peculiarly situated. A large proportion of the food of her people is imported, much of it from long distances, and on arrival at the ports has to be distributed to all parts of the country, while the provision of cold storage and cold transport is far less than in some other countries. Home producers have urged that the ultimate point in cleanliness and the maximum of efficiency have been attained in their factories, and yet the food cannot be relied upon to keep for the necessary period between preparation and consumption without preservatives. Nevertheless the Committee is confident that in the case of many foods trade methods could be adjusted to eliminate preservatives without serious inconvenience to traders or consumers.

Conclusions and Recommendations.

Permissible Preservatives.—After a consideration of all the evidence the Committee concludes that preservatives should be prohibited in all articles of food and drink offered or exposed for sale whether manufactured in this country or imported, *except that:*

(*a*) *Sulphur dioxide* only should be permitted (1) in sausages in amounts not exceeding 3 gr. per pound; (2) in jam in amounts not exceeding 0·3 gr. per pound; (3) in dried fruit in amounts not exceeding 7 gr. per pound; (4) in preserved (but not dried) whole fruit or fruit pulp in amounts not exceeding 5 gr. per pound; (5) in beer and cider whether in bottle or in cask in amounts not exceeding 5 gr. per gallon; (6) in alcoholic wines, non-alcoholic wines and cordials, and fruit juices, sweetened and unsweetened, in amounts not exceeding 3 gr. per pint.

(*b*) *Benzoic acid* only should be permitted (1) in coffee extract in amounts not exceeding 3 gr. per pound; (2) in non-alcoholic wines and cordials, and sweetened and unsweetened fruit juices (as an alternative to sulphur dioxide), in amounts not exceeding 5 gr. per pint; (3) in sweetened mineral waters and in brewed ginger beer in amounts not exceeding 1 gr. per pint.

Sale of Preservatives.—The sale of any preparation as a food preservative or for use in such circumstances that it may be introduced into food should be declared illegal unless such preparation (*a*) bears a description clearly indicating its composition and strength; (*b*) is free from impurities and in particular contains not more than 1/100th part of 1 gr. of arsenic per pound or more than 1/7th part of 1 gr. of lead per pound.

Declaration of Nature and Quantity.—The use of preservatives so far as they are permitted should be upon the condition that the nature and quantity of the preservative present in the article of food should be declared[4] in a manner prescribed by the Minister of Health. In cases in which the declaration of the preservative might be difficult to enforce or might result in undue harm to the industry without compensating advantage to the consumer, exception to this requirement might be made, but the exception should in no circumstances apply to sausages.

Copper Salt.—The employment of a copper salt to colour or preserve the colour of peas and other vegetables should be prohibited.

Schedule of Colouring Matters.—A schedule should be issued by the Minister of Health after such inquiry as is necessary of colouring matters the use of which may be considered non-injurious to health, such schedule to be subject to amendment or extension from time to time as occasion may require. Within a suitable period after the publication of this list the use of any other colouring matter should be prohibited unless and until it shall have been approved by the Minister.

Period of Grace.—Before the prohibition of preservatives or of colouring matters in food (including the use of copper salts for the so-called greening of vegetables) is enforced, a period of grace should be allowed sufficient to enable manufacturers and importers to adjust their methods and processes and to allow stocks to be cleared.

Storage and Transport.—Improved methods in the storage and transport of food by rail, road and water, especially as regards the use of refrigeration and cool-air storage, are urgently required.

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[4] Sir David Hall regards it impracticable from a trade point of view and unnecessary for the protection of the public health to enforce a declaration of the presence of the permissible quantity of sulphur dioxide in beer, cider, wines, and mineral waters.

Regulations to Bind Courts.—It should be provided by law that any regulations or statute prohibiting or limiting the use of preservatives and colouring matters should bind the courts in proceedings taken under the Sale of Food and Drugs Act in respect of their use.

Expedited Prosecution.—An amendment of the law is required to render more expeditious the prosecution of a person actually responsible for offences under these Acts, where a warranty defence is pleaded.

Right of Inspection.—Further powers of control by registration, licensing, or inspection should be given to local authorities in relation to all places concerned in the production, sale, storage, and distribution of food.

Amendments of Law.

The Committee regards the present position of the law in regard to preservatives and colouring matters as far from satisfactory. Under the Sale of Food and Drugs Act, 1875, the proof that a preservative or colouring matter mixed with an article renders it injurious to health is not an easy or expeditious matter and when established in one court is not necessarily effective in other courts. Expert evidence is given on both sides, and the court has to decide on the conflict of evidence whether an offence has or has not been committed. Each case has to be decided on the evidence laid before the particular court, as to the probability of injury to health, and there is no recognised standard by which the court is bound. Neither traders nor local authorities nor the public can definitely know what is permissible under the law and what is not. Many authorities hesitate to undertake prosecutions under the present law except in cases where the amount of preservative used is grossly excessive. For instance, the previous Departmental Committee in 1901 recommended that the limit of boron preservative in cream should be 0·25 per cent., the Local Government Board in 1917 adopted a limit of 0·4 per cent., the presence of 0·3157 of boric acid per cent. was held at the Clerkenwell Quarter Sessions in 1913 to be injurious, while other authorities do not proceed unless the amount exceeds 0·4 per cent.

Whatever may be the actual measure of control taken, the Committee regards it as eminently desirable that it should be clearly embodied in regulations having the force of law. Any prohibitions or limitations imposed by the regulations should bind the courts in proceedings taken under the Sale of Food and Drugs Acts. If this were done, traders and the public generally would know what was permissible and what was not, and there would be no conflict of expert evidence on the question whether the amount of preservative or colouring matter was or was not injurious to health.

Improved legal means for dealing with offences connected with the adulteration of food would not, the Committee considers, quite cover the whole ground. The suggestion that sulphur dioxide might be permitted as a preservative in sausages needs a special safeguard against the risk that tainted ingredients may be used in their manufacture, the unsoundness of which may be masked by the preservative. Such permission could only safely be accorded if local authorities are empowered to inspect the places where such articles are prepared, together with the methods of preparation and the materials used. Cleanliness of materials and methods is a matter of prime importance in the production of food, and the use of preservatives is apt to tend to the perpetuation of bad methods. If suitable regulations were made for securing ventilation, cleanliness of premises and appliances, the use of clean and wholesome materials, and the like, in all places where food is prepared and retailed, including eating houses and restaurants, a great deal would be gained. Coupled with the power to make such regulations there should be a power of inspecting all places to which the regulations apply.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Royal Medical Society of Edinburgh.

THE inaugural address of the 188th session of the Royal Medical Society of Edinburgh was delivered on Oct. 17th by Sir Ronald Ross, K.C.B., director and chief of the Ross Institute and Hospital for Tropical Diseases, London. Dr. A. B. Williamson, the President of the Society, was in the chair. Sir Ronald Ross took as the title for his address Thoughts on Medical Discovery. He said that a brief study of civilisation showed discovery to be a rare phenomenon, tending to be localised both in place and time. The Græco-Roman period of discovery lasted about nine centuries, and following it there came a long negative period of about 11 or 12 centuries in the course of which practically no advances of any kind were made. In the fourteenth and fifteenth centuries came the renaissance simultaneously in almost every line, in art, literature, science, exploration, and philosophy, a renaissance which had lasted up to the present day. Sir Flinders Petrie's hypothesis as to the cause of these periodic augmentations of intellectual vigour was that they followed the admixture of races by permeation or conquest. The vigour of a people began to increase some centuries after permeation with a foreign race; art and science were born or re-born, and then came regression and decay, followed by subsequent invasions and conquests. It was, indeed, unlikely, said the speaker, that all the world's nations could be at the same stage of development. India and China to-day were in the slack stage as compared with Europe, and Europe was approaching the slack stage as compared with America. Sir Ronald Ross held that medical discovery was to human beings the most important of all kinds of discovery. Yet, to judge by the public attention given to it, it was the least important. Men handed it over to the doctors and were good enough to allocate almost no money for the prosecution of it. The total amount provided for research every year in this country was, he said, probably only £180,000, a sum which represented a contribution of a penny per head for England, Scotland, and Wales, and this was for a science concerned with the life and health of all the people. For this penny everyone hoped to have his life prolonged. Life had been prolonged in the last 80 years in London from an average of 40 years to 60 years, and he did not see why the average expectation of life should not reach the 70 years of the psalmist. It was not known why elephants and parrots and tortoises lived for more than a century, while horses and dogs died before 20, and he said he had often wondered what would be the length of life of an individual kept entirely free from pathogenic organisms and certain deleterious foods and drinks. Doctors and every man of science might congratulate themselves that almost the whole of medical discovery had been made without the help of anyone and at their own expense, but the world would be wise to spend much more money than it was now doing in order to fight diseases of all kinds by investigating how they might be fought. The country had to pay millions of pounds for the prevention of foot-and-mouth disease, largely because it refused to pay small sums for the investigation of the disease. Sir Byrom Bramwell moved a vote of thanks to the lecturer, which was seconded by Dr. W. McKie.

University of Edinburgh.

At a recent meeting of the University Court of Edinburgh University it was announced that an ordinance had been approved by His Majesty in Council whereby medical students who have passed an approved examination in any of the subjects of the first or second professional examination at any other university in the United Kingdom or elsewhere, may have such passes counted as equivalent to passes in Edinburgh University, subject to the approval of the Senate and the Court.

At the same meeting a letter was read from Miss Margaret C. Tod, M.B., Ch.B., who graduated with first-class honours in July, 1924, intimating that she did not feel justified in accepting the considerable sum of money granted to her in scholarships and prizes and requesting that the amount be added to the D. R. Wardlaw Memorial Fund for necessitous students. The Court resolved to accept Dr. Tod's offer.

IRELAND.

(From our own Correspondents.)

Irish Free State: The Local Government Bill.

The Minister of Local Government and Public Health has found that so many amendments to his Local Government Bill would be necessary that he has decided to withdraw the Bill introduced last session and bring in an entirely fresh measure. In reference to this the Minister, Mr. Burke, with some of his principal officers, gave an interview last week to a deputation from the Irish Medical Committee. The members of the deputation were Drs. J. M. Day, H. Raverty, P. J. Shanly, and T. Hennessy, with Mr. C. H. Gick. Sir James Craig also attended and took part in the discussion. The following is a brief summary of how medical officers will probably be affected if the Local Government Bill becomes law:—

1. Section 8 of the Local Government Act, 1919, with its mandatory provisions for pensions, will be allowed to stand for all existing medical officers who within a prescribed time, which may be three or six months, elect to come under this section for the purposes of their pensions. It is believed, however, that the basis for calculating the amount of pensions will be so altered as to secure a more uniform standard.
2. Added years for meritorious and professional service will remain optional, with the right of appeal to the Minister.
3. Pensions of medical officers appointed after the passing of the Local Government Bill will be as heretofore permissive, but in case of refusal by a local authority, or dispute as to the amount, the right of appeal to the Minister will be provided for. It was pointed out on behalf of the Ministry that there is no mandatory provision for pensions for civil servants, and that the appeal to the Minister will place medical and other officers of local authorities on the same footing as civil servants with regard to pension rights.

In addition to the pension sections other matters arising out of the Bill were discussed, and the Minister promised to give them his consideration.

Royal Victoria Hospital, Belfast.

The session was opened on Oct. 16th, when there was a large attendance of students and of the medical staff. The opening address was delivered by Prof. W. W. D. Thomson, who paid a tribute to those friends of the hospital who had passed away during the previous year—Viscount Pirrie, Sir John Walton Browne, and Miss Riddell. He surveyed the field of clinical medicine, emphasising the fundamental importance of bedside observation, and concluded with an interesting analysis of the careers of those students who had begun their medical studies with him 20 years ago. A hearty vote of thanks was passed to the lecturer for his valuable and instructive address on the motion of Prof. J. A. Lindsay, seconded by Colonel T. Sinclair.

Dr. William Calwell and Dr. H. L. W. Kisack have retired from the active staff under the age-limit and have been appointed consulting physicians to the hospital. The board of management passed a very cordial vote of thanks to them for long and faithful services. They have been the recipients of a presentation of silver plate from their colleagues on the staff, by whom they were entertained at dinner. Their successors on the active staff are Prof. W. Thomson and Dr. Foster Coates. To fill the vacancies thus created in the out-patient department Dr. Robert Marshall and Dr. Samuel I. Turkington have been appointed assistant physicians.

The entrances at the Belfast Medical School this session show some decline on the previous session's figures, but are considerably in excess of the pre-war figures.

The Health of Belfast: Annual Report for 1923.

The most notable feature of the recent health history of Belfast has been the rapid decline in typhoid fever. Thirty or forty years ago the disease was very rife, and in one year the deaths numbered no less than 500. In the year 1904 the deaths were at the rate of 0·30 per 1000 of the population. In 1908 the figure had fallen to 0·15 per 1000. In 1909 there was a drop to 0·05 per 1000, and in the period 1919–22 the figure was 0·04 per 1000. In 1923 the figure had fallen to 0·01 per 1000. This rapid and satisfactory decline was coincident with the inauguration of the present excellent water-supply, which is chiefly derived from the large storage basins in the Mourne Mountains. Diphtheria seems to be about stationary. The notifications for 1923 were 289, but of these 48 were found not to be suffering from the disease. The average number notified for the decennial period 1913–22 was 289, and deaths in 1923 numbered 24, as compared with an average for 1913–22 of 34. Scarlet fever continues to be very prevalent. The number of cases during the past year was 981, as compared with 744 in 1922, and an average for 1913–22 of 1440. Of the 20 cases of encephalitis lethargica notified in the report for 1923, three were fatal. The deaths from cancer numbered 391, as compared with 363 in 1922. Influenza accounted for 100 deaths, as compared with 241 in 1922. The deaths from phthisis were 571, as compared with 624 in 1922. Pneumonia accounted for 564 deaths, as compared with 594 in 1922. The report contains full particulars of the sanitary improvements effected during the year. Progress is well maintained.

PARIS.

(From our own Correspondent.)

The Thirty-third French Surgical Congress.

The thirty-third French Surgical Congress which was recently held in Paris was eminently successful both from the point of view of attendance of members and from the character of the discussions which were held. The President, Prof. Tuffier, opened the Congress with a paper on the modern conception of surgery. He said that surgery was based on a firm tripod of technique, observation, and experiment, and the keynote of development was precision. Dr. Auvray, who took on the office of general secretary, paid a tribute to his predecessor, Dr. J.-L. Faure, and in the name of the Congress welcomed a delegation of 30 Polish doctors, headed by Dr. Zawadski, of Warsaw. Three main subjects came up for discussion during the Congress. The first was the treatment of simple fractures of the upper extremity of the femur and their ultimate results. Mr. Dujarier, of Paris, and Mr. Léon Imbert, of Marseilles, read a well-informed paper on the different methods of treatment of fractures of the neck of the femur. They discussed operative treatment and non-operative treatment. Of the latter the following methods were described: (1) Championnière's method—namely, a very short stay in bed with extension and massage from the commencement; (2) continued traction; and (3) Whitman's method—namely, accurate reduction followed by retention in plaster-of-Paris. The second subject for discussion was the indication for surgical treatment in uterine fibroids. Mr. Tixier, of Lyons, set forth the conditions in which surgical treatment was the only possibility. The mortality from operation was about 4½ per cent. (576 deaths in 12,893 cases), of which 2 per cent. were due to infectious complications. Other causes which too frequently caused death were the sequelæ of anæsthesia and vascular complications, such as phlebitis, hence it was necessary to improve both technique and pre- and post-operative treatment. Surgery should be conservative as often as possible. The ideal should be myomectomy, thus preserving the form and function of the uterus, a thing to be aimed at even in the case of elderly primiparæ, as the natural ovarian secretion was insufficient to cope with the disorders of a precipitated menopause. Where the intervention was not conservative it must be radical, and the procedure of choice was total hysterectomy. In very young women, in order to leave the anatomical form of the vagina intact, subtotal hysterectomy might be performed. Mr. Labey, of Paris, then spoke of the different forms of operation, both in the pregnant and the non-pregnant woman.

The third subject for discussion was pre- and post-operative care and the choice of an anæsthetic in gastro-intestinal surgery, on which Mr. Lambret, of Lille, and Mr. Lardennois, of Paris, had prepared a paper. One meeting of the Congress was given over to kinematographic demonstrations, showing the technique of removing the cancerous breast by Mr. Depage and Mr. Davis, of Brussels, laminectomy by means of a new nibbling forceps by Mr. Davis, two methods of cosmetic surgery of the breast by Mr. Dartigues, of Paris, and the technique of operations for correcting defects of the nose by Mr. Dufourmentel, of Paris.

The Fourth Pediatric Congress.

The Fourth Congress of the Association of French-speaking Pediatrists was recently held in Paris at the Sick Children's Hospital under the presidency of Prof. Marfan, assisted by Dr. Henri Barbier, the general secretary. There were three subjects of discussion, the first being the treatment of purulent pleurisy in children, on which Dr. Ribadeau-Dumas, of Paris, and Dr. Rocher, of Bordeaux, had prepared a report. In the child the effusion was purulent in one-half or one-third of all cases, while in the adult it was only seen in about every fifteenth case. The different treatments employed for this condition were reviewed by the speakers. The variety in the methods of treatment adopted was to be explained by (1) the many different types of purulent pleurisy; (2) the state of the patient; (3) the state of the lung; (4) the age of the subject; and (5) by the type of the organismal infection. The evacuation of pus must be promoted by all medical resources available, such as chemotherapy, serotherapy, and vaccinotherapy. Extensive drainage by resection of the ribs ought to be avoided. Purulent pleurisy in very young children required conservative measures, such as aspiration and syphon drainage. The low infectivity of pneumococcal infections was well known. For these infections the treatment indicated was repeated aspiration, which might be followed by some therapeutic injection. In tuberculous effusions conservative treatment was indicated, and in other cases pleurotomy. The second subject for consideration was the prophylaxis and treatment of infantile syphilis. Mr. Léon Tixier read a paper in which he discussed hereditary syphilis in all its aspects, and dealt with the question of authorising marriage between syphilitic individuals and of the treatment to be adopted during pregnancy. He advocated the supervision of parents and children with a view to avoiding the consequences of hereditary syphilis. For the suckling he advised a combination of mercury, arsenic, and bismuth, administered alternately. When the child was weaned the treatment differed little from that of the adult. The exhibition of small initial doses avoided fatal accidents, especially if care was taken not to give intravenous injections to cachectic children. The ease with which mercurial inunctions could be carried out was not a sufficient reason for preferring them to more efficacious measures when such could be applied. The third subject comprised the study of the ætiology and pathogenesis of rickets. MM. Lesné, de Gennes, and Vagliano, of Paris, referred to the results obtained from animal experiment, and stated their conclusions from the study of human rickets. Human rickets appeared to have a very different source of origin from that of experimental rickets. For example, deficiency of phosphorus and calcium was not found to be a basic factor, while syphilis and tuberculosis seemed to be a relatively rare element in ætiology. On the other hand, much greater attention must be paid to digestive troubles of early childhood as a causal factor. In spite of the obscurity which still existed in regard to the ætiology and pathogenesis of rickets great benefit was gained by treatment with solar radiation, ultra-violet rays, and cod-liver oil. These three measures formed the most effective therapeusis both from the curative and the preventive aspects.

The Congress of French-speaking pediatrists will be held in future every second year, alternately in Paris and outside France. The next is fixed for Lausanne in September, 1926.

Annual Statistics of Recently Qualified Doctors.

The number of diplomas of doctor of medicine issued by the French Medical Faculty during the academic year 1923–24 was 1124, an increase of 130 on the number issued in the preceding year. The figures vary greatly in the different schools. Paris leads with 496, then come Lyons (152), Bordeaux (133), Montpellier (103), Toulouse (53), Lille (45), Algiers (43), Strasbourg (42), Nancy (29), and the French Medical Faculty of Beyrouth, Syria (28). These figures refer only to the State diploma—that is, the diploma which gives the right to practise medicine in France. The University diploma, which is reserved for foreigners, is a purely academic one, and does not confer any of the rights and privileges attached to the status of doctor as given by a State diploma. The number of these diplomas granted by French universities during the academic year 1923–24 was 165.

UNITED STATES OF AMERICA.

(From an Occasional Correspondent.)

The Use of Insulin.

It is somewhat disappointing to find that the discovery of insulin has not yet checked the increasing death-rate from diabetes in this country. On the contrary, diabetes achieved last year, for the first time in the statistical history of New York City, the distinction of a place among the first causes of death. The Metropolitan Life Insurance Company, naturally interested in this apparent failure, has investigated the histories behind 500 certificates giving diabetes as the cause of death. They made the surprising discovery that only 45·4 per cent. of these had received any insulin at all. Of the minority receiving insulin, one-third took their first dose in the last week of life, and nearly two-thirds within a month of death. Of the complications certified coma was the most common (46 per cent.). Arteriosclerosis was reported in 24·8 per cent., chronic nephritis in 23·4 per cent., and gangrene in 23·4 per cent. In a series of 58 cases where no other complication than coma was present 21 received not a single dose of insulin.

Mortality-rates in 1924.

The 15,000,000 policy-holders of the Metropolitan Life Insurance Company provide a convenient albeit a selected group of the nation from which the trend of death-rates may be rapidly determined. Among this selected group the death-rate from diabetes in the first six months of 1924 shows a decrease of 21·6 per cent. among white policy-holders and more than 10 per cent. among coloured policy-holders, as compared with the four years preceding. The death-rate from automobile accidents was one of the few which showed increase—to 12·6 per 100,000 for whites and 11·7 for coloured. The coloured rate is a 92 per cent. increase over that for the corresponding period in 1922. Satisfactory declines are shown in the rates for diphtheria and typhoid fever. There is also a definite fall in the cancer rate for white policy-holders (72·3 to 68·7). The gain is nearly offset by a rise in the coloured rate. This situation is one that might be expected to arise if the educational programme is resulting in earlier diagnosis among the more intelligent people.

Anthrax in New York.

A clinical and epidemiological study of anthrax in the City of New York has recently been made by Dr. William Jacobsohn for the five-year period 1919–1923. He visited each one of the 61 reported cases. The infection in 32 of these was derived from shaving-brushes. One-third of all the cases occurred among brush-makers, warehousemen, truckmen, and longshoremen. The use of anti-anthrax serum alone gave as good results as any other method of treatment. Of 36 cases that received this treatment 29 recovered, although the fatality-rate for the 61 cases was 31 per cent. The causes contributory to fatality are classified as (1) virulence of infection, (2) extreme age or poor physique of patient, (3) delay in seeking medical attention, and (4) erroneous or late diagnosis and late treatment. The incubation period (from exposure to local swelling following the appearance of a papule) is given as follows: In 31 cases, one day; in six cases, two days; in four cases, three days; in five cases, four days; in five cases, five days; in one case each, six days, seven days, and eight days, respectively; and in seven cases undetermined. Sixty per cent. of the cases experienced no pain. In only 18 cases did the temperature rise above 102° F. As a consequence of active measures by the department of health, the incidence of anthrax in New York is declining rapidly. Only one case has been reported in the first six months of this year.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Fewer School-children in Vienna.

WHEN the secondary schools opened for the winter term in the middle of September the total number of new pupils showed a diminution on the figure for the previous year. Education is compulsory between the ages of 6 and 14 years, and not more than 11,000 children aged 6 years were enrolled, in comparison to last year's figure of 12,680. Consequently a number of schools had to be closed down. This falling-off in the numbers of school-children is one of the visible results of the decreasing birth-rate which has been recorded since the beginning of the century, and which was aggravated by the ten years of war and its consequences. The calculations based on the statistical data published by the Municipal Board of Health show that this year will probably be the last one in which a decrease will be manifest; the next school year will most probably give indication of a slight increase. But as the increase forecasted to the year 1928 is more than counter-balanced by the loss of numbers due to older pupils leaving the schools, the total number of children in school (which in 1923 was 146,200 boys and girls) will diminish to 119,000 in 1928. As a result of the constant falling-off of pupils there has been a very favourable decrease in the average number of children occupying one class-room. The average number is now 29–30 as compared to 50–70 in former years. This is an advantage from the sanitary and the social points of view. In classes for mentally affected children the number has been reduced to 12–18 pupils.

The Winter Session of the Vienna University.

The University of Vienna opened its gates to students in October, and the session closes in March, 1925. Whilst the number of medical students during the summer term was 2048, or about 30 per cent. of the total matriculated students at the University, 2342 have been enrolled for the winter session. This is the first year that the regular courses in all branches will be held just as before the war. A large number of classes will be given in the English language, as the American Medical Association of Vienna has arranged with the leading professors and assistants of the clinics and hospitals to hold special classes for their members. The fees vary between 4*s.* and 8*s.* per hour per student, not more than 10 being admitted to any one class; all English-speaking doctors may attend these classes. Apart from the regular clinical lectures on surgery, materia medica, dermatology, gynæcology, pediatrics, and ophthalmology, there has been arranged a variety of special lectures on such subjects as chemistry of the blood, diabetes, tuberculosis, social medicine, occupational diseases, psycho-analysis, and bacteriological and serological problems. One subject only will be more limited in its scope than in previous years—namely, anatomical dissections. Owing to the scarcity of cadavera (on which I reported some time ago), Prof. Tandler will not take up his regular anatomical lectures this year.

The Medical Profession and the Problem of Artificial Abortion.

The aspect of eugenics which aims at preventing undesirable births is now a leading issue in Austria. All classes of the population have come to understand that there are moral, social, medical, and even financial indications for the premature interruption of a pregnancy. The law, however, still sets its face sternly against this practice, and its action in certain cases in the last few months (vide THE LANCET, 1924, i., 1285) raised a violent protest from the medical profession and furthered the attempt to alter the existing law by amendments to a Bill before the National Assembly. The profession as a whole has openly taken up the fight against what I consider to be antiquated laws, and hardly a week passes in which the subject is not dealt with at mass meetings or in articles in the press or in petitions to the National Assembly and Ministry of Justice. No doctor now complies with the order of the Public Prosecutor, which demands that every case of abortion be notified to the police, nor do the hospitals, as a rule, make a diagnosis of abortion except where fatal results are expected.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. W. N. Blatchford is placed on the Ret. List.

ROYAL ARMY MEDICAL CORPS.

Maj. F. A. H. Clarke to be Lt.-Col., vice Lt.-Col. J. H. R. Bond, to ret. pay.

Maj. T. C. R. Archer is secd. for serv. under the Colonial Office.

Capt. W. H. Ferguson is granted the temp. rank of Maj. whilst empld. as Dep. Asst. Dir. of Pathology.

Capt. F. J. Hallinan relinquishes the actg. rank of Maj. on ceasing to be empld. as Dep. Asst. Dir. of Pathology.

Capt. H. W. L. Allott retires, receiving a gratuity.

TERRITORIAL ARMY.

Maj. V. T. Carruthers to be Lt.-Col. and to command the 137th (North Midland) Field Ambulance.

Maj. (Prov.) G. B. Brand resigns his commn. and retains the rank of Capt.

Lt. W. J. C. Watt to be Capt.

ROYAL AIR FORCE.

A. Harvey and H. W. D. Mackenzie (for duty at Royal Infirmary, Edinburgh) are granted short service commissions as Flying Officers.

INDIAN MEDICAL SERVICE.

Lt. A. L. Watts to be Capt.

Capts. Pappu Subbaramayya, A. Williams (and is permitted to retain the rank of Capt.), and Lt. Manohar Datta Gautama relinquish their tempy. commns.

The King has approved the retirement of Maj.-Gen. J. Jackson.

Gurbaksh Singh Chawla to be tempy. Lt.

GENERAL MEDICAL COUNCIL:
ELECTION OF DIRECT REPRESENTATIVES.

ENGLAND AND WALES.

FOUR names were selected last July by English and Welsh deputies at the annual meeting of the British Medical Association for nomination on behalf of the Association as Direct Representatives of the registered medical practitioners of England and Wales on the General Medical Council. These were Dr. R. A. BOLAM, Dr. J. A. MACDONALD, Sir JENNER VERRALL, and Dr. H. B. BRACKENBURY. On their behalf the following election address has been circulated.

LADIES AND GENTLEMEN,

The election of four Direct Representatives for England and Wales to the General Medical Council will take place early in November.

In the deliberations of the Council and in the exercise of its statutory powers there is constant need for a knowledge, so far as it can be ascertained, of the collective view of the profession.

We appeal as a group to you, the electors, in the belief that our conjoined experience and opportunities are of such nature as to enable us to offer you service which would be of value in this respect. Individually and as a group we have had in different capacities a considerable experience of varying professional duties and responsibilities, and we confidently claim an intimate knowledge of public medical work. Two of us (Dr. Macdonald and Sir Jenner Verrall) have been familiar with the work of the General Medical Council for a number of years and have the privilege at present of acting on some of the Committees of the Council whose activities have a very direct and practical bearing on the interests of the profession. Dr. Bolam has been one of your Representatives for the years 1919 to 1924. The record of public service and the very special knowledge of certain aspects of medical work possessed by Dr. Brackenbury are well known to the profession and will, we believe, commend his candidature to you.

One of the chief pre-occupations of the General Medical Council is with medical education, and it is important that matters relating thereto which bear upon the ultimate efficiency and interests of the practitioner should be adequately voiced by Representatives in direct touch with medical practice in its several branches.

The Council is now constantly consulted by the Government Department in Bills affecting the profession and in regulations proposed under Acts of Parliament.

Possible developments and extensions of a National Health Insurance Service are the subject of investigation by a Royal Commission now beginning its deliberations, and the effect of its findings on the whole life and outlook of the profession may be far-reaching.

The introduction of National Health Insurance has raised new ethical and disciplinary questions which have required the attention of the Council. Further developments may be expected to create fresh problems of a like nature on which your Representatives should be able to express practical and well-informed opinions.

We believe that there is more than ever a need for Direct Representatives on the General Medical Council who are experienced in administration and in the medico-political difficulties of the profession. We offer the assurance of a sincere desire to spare no effort in our power for the credit and welfare of the profession, should you honour us by electing us as your Representatives; and we ask not only for your vote but for your active assistance in securing the votes of your colleagues to this end.

R. A. BOLAM,
Representative Member, General Medical Council: Member, Voluntary Hospitals Commission: Member, Consultative Council of Ministry of Health on Medical and Allied Services: Chairman of Council, British Medical Association.

H. B. BRACKENBURY,
Chairman of Representative Body and of the Insurance Acts Committee of the British Medical Association: Vice-President, formerly President of the Association of Education Committees.

J. A. MACDONALD,
Representative Member, General Medical Council: Member Consultative Council of the Ministry of Health on Medical and Allied Services; formerly Chairman of Representative Meetings and Chairman of Council, British Medical Association.

T. JENNER VERRALL,
Representative Member, General Medical Council: late Chairman, Central Medical War Committee for England and Wales: Member of Council and formerly Chairman of Representative Meetings British Medical Association.

Oct. 23rd.

Dr. F. H. WESTMACOTT, of Manchester, who is standing as an independent candidate, presents to the electors a summary of his professional record. Qualifications: B.Sc. Vict., M.R.C.S., L.R.C.P. 1890, F.R.C.S. by examination 1894. He studied at Manchester University and afterwards in Paris and Vienna for about 18 months to acquire methods of teaching and practice. Since 1898 he has held appointments on the hon. medical staff of several hospitals, particularly the Manchester Royal Infirmary, where he is hon. aurist and laryngologist. He is University lecturer as well as examiner in oto-laryngology. His election address continues: "As consulting surgeon and teacher I have acquired a wide experience of the requirements of medical students and of medical education as well as of the needs of the public. In conducting post-graduate courses of lectures the question of qualifying diplomas in special branches of medicine and surgery has been of great interest to me. I am an examiner for the State Registration of Nurses. An appointment on the hon. staff of the Victoria Dental Hospital of Manchester for many years provided an intimate knowledge of the education and practice of dentistry. During the whole of my professional career I have taken an active interest in the energies of many medical societies, both scientific and ethical. Among other appointments I am a member of the North-Western Advisory Council of the Ministry of Pensions. Such vital questions as the National Health Insurance Acts and the Workmen's Compensation Acts have long engaged my attention. An intimate knowledge of them has convinced me that considerable amendment and improvement are necessary to obtain the maximum benefit and satisfaction to the public and the medical profession. The requirements of the medical services of the Army have impressed me during the 26 years I have held a commission in the auxiliary and regular forces."

Dr. Westmacott served from August 5th, 1914, to Jan. 29th, 1920, spending nearly three years in France in command of a general hospital, and later as A.D.M.S. of the Marseilles Base. Before going to France he commanded the 2nd Western General Hospital in Manchester. Since the war he has held the position of A.D.M.S. of the 42nd (East Lancs) Division, holding the rank of Colonel A.M.S. (T.). He is a Commander of the Order of the British Empire, a Knight of Grace of the Order of St. John of Jerusalem, and a Deputy Lieutenant for the County Palatine of Lancaster.

Dr. JOHN BROWN, who stood in 1919 as an independent candidate, writes that while he is not standing this time he still wishes to protest against the nomination by the British Medical Association of four Representatives, on the ground that this practically excludes the free election by the medical profession of Representatives who are not members of the Association. He advocates the division of the English constituency into four for electoral purposes.

SCOTLAND.

On behalf of the candidature of Sir NORMAN WALKER we have received the following letter.

SIR,—The President of the General Medical Council has issued his notice for the election to the Council of a Direct Representative of the Registered Medical Practitioners of Scotland.

We have ascertained that Sir Norman Walker, the present Representative, is willing again to place his services at their disposal. Sir Norman has made for himself a position upon the Council upon which those who have supported him in his previous candidatures may look with some pride. He is Chairman of the Business and Examination Committees, and a member of the Executive and Penal Cases Committees, while his selection by the General Council as Commissioner to India to investigate the conditions of Medical Education there speaks well for the position he has acquired in the esteem of the Council. We venture to express the opinion that our medical brethren in Scotland could not do better than support his candidature for another term of office.

We are, yours &c.,

C. E. Douglas,
Cupar.
J. B. Simpson,
Golspie.
George Williamson,
Ashley W. Mackintosh,
John Marnoch,
J. F. Christie,
Aberdeen.
D. Elliot Dickson,
Lochgelly.
J. Macdonald,
Cupar.
John J. Wilson,
Anstruther.
G. Lovell Gulland,
Harold J. Stiles,
Robert Thin,
Edinburgh.
T. K. Monro,
W. Herbert Brown,
Glasgow.
George R. Livingston,
Dumfries.
Murray B. Steuart,
Kirkcudbright.
J. P. Brown,
Campbeltown.
P. F. Macfarlan,
Stirling.
Robert Stirling,
Perth.
Robert Inch,
Gorebridge.
C. J. W. Dixon,
Hawick.
A. J. Campbell,
Duns.
William McAlister,
Kilmarnock.
P. T. Herring,
David Waterston,
St. Andrews.
James Laurie,
Greenock.

MENTAL HOSPITALS SERVICE.

A SATISFACTORY year's work and several changes of interest are recorded in the annual report of the *Dorset Mental Hospital* for 1923–24. The recovery-rate has been high, 39 per cent. on total admissions and 54 per cent. reckoned on total recoverable cases. Satisfaction is expressed with the results of the "open door" system adopted in certain wards; the patients are also better classified, 84 are allowed parole within or outside the grounds, and 17 patients away on trial have received money allowances. Remarkably few epileptics and general paralytics have been admitted; the comparative freedom from syphilis of rural areas is doubtless the explanation in the latter case, but the rarity of epilepsy in Dorset is less readily explicable and is deserving of investigation. There is now an out-patient centre in Dorchester, conducted by the medical superintendent, Dr. G. E. Peachell, where 52 patients have been seen during its first year of working; 10 of these recovered, 12 were relieved, and 9 were certified and admitted to the hospital. In addition to a resident medical staff of four members, the hospital possesses a visiting dentist and a visiting physician, and has recently acquired a laboratory assistant (apparently not medically qualified), who has undertaken a large and varied amount of pathological work, including water analyses, serological and bacteriological work in connexion with typhoid and dysentery, and the preparation of vaccines. Among the causes of death appears one case of rupture of a coronary artery, surely worthy of note as an extremely rare occurrence.

The annual report of the *Brighton County Borough Mental Hospital, Haywards Heath*, for 1923 contains little but a bare record of changes among the patients, staff, and committee, apart from the observations made by a Visiting Commissioner, from which alone can any idea be obtained of the conditions under which the patients are living. His report embodies certain criticisms, some of which owe their origin to the fact that the fabric dates from 1859; the facilities, the lack of which is most severely felt, are a laboratory, clinical room, operating theatre, verandahs, baths, and an out-patient centre. It is also suggested that male patients should be shaved, that parole (with money allowance) should be granted more often, and that clothing and diet should be improved in certain respects. It appears that the ordinary patients' milk is skimmed to provide butter for debilitated cases; meanwhile, the nursing and domestic staff are supplied with margarine, but since they prefer to buy their own butter, their discarded margarine is melted down with dripping for th patients. This strange and complex proceeding would be humorous but for the fact that there are 21 known cases of active tuberculosis in the hospital Our resources in the treatment of mental disease are few enough, but we should surely use, at least in recoverable cases, those of which we have knowledge and among them an adequate dietary takes an important place.

Correspondence.

"Audi alteram partem."

CANCER AND SOME OF ITS SIGNIFICANT CHEMICAL REACTIONS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Oct. 4th Mr. H. Gordon Reeves set out the salient features of the chemica work done on the cancer problem in the physiologica laboratory of King's College, London. There is a distinct parallelism between the work outlined and that initiated by Sir George T. Beatson in 1910 at the Glasgow Royal Cancer Hospital, and it is interesting to note that the work done in Glasgow during the last 10 or 15 years has received a large measure of confirmation from that of Shaw-Mackenzie and Reeves.

In Reeves's communication some points of an unsettled nature are brought forward, and I should like to draw attention to these. In the first instance Shaw-Mackenzie is quoted as stating that tissu lipolysis and utilisation of fats are defective in cancer In his opinion normal blood serum has an accelerating influence on lipoclastic activity, and this activit is diminished by the addition to lipase of serum from a cancerous subject. From this and other findings he concludes that there is a general deficiency in lipolytic control, which deficiency, we presume he considers is manifested in the carcinomatous locality. If this be so, then one would expect to find a lowered, rather than an increased, saturation in the fat of the adipose tissue affected. Instead Shaw-Mackenzie and Reeves have found, as we have in this research department, that there is an increase in unsaturation of the adipose tissue invaded by carcinoma. I do not think that the range of variation in lipolytic activity affects to any marked degree change in saturation. If anything, an increased activity in the tissues would increase the amount of free fatty acid. In a determination of iodine value this free fatty acid would be part of the lipin complex to be evaluated and its associates of glycerol or lecithin structural units would be absent from the ether extract. Thus to the complex there would be added a substance or substances with comparatively small molecules and a proportionately high unsaturation coefficient. As a result of such an addition due to increased lipolytic activity, the iodine value of the complex would manifestly be increased. It is on that teleological basis that we are inclined to question the validity of Shaw-Mackenzie's observation.

Recent research has shown that to simulate as closely as possible "in vivo" conditions the course of enzyme reactions must be controlled with due attention to the hydrogen-ion concentration. It is obvious, of course, that, in the test-tube, lipase activity is manifested by a change of pH towards the acid side, owing to an accumulation of the products of lipolysis. In the body, however, there is a delicately adjusted mechanism whereby the products of enzyme action are removed from the sphere of activity as soon as formed, and, because of this control, a constant level of hydrogen-ion concentration is maintained and enzymic inhibition is frustrated. It will be seen, then, that it is difficult to simulate the biotic courses of lipase activity in the test-tube and the interpretation of results becomes endowed with a misleading elasticity.

In the second place, Reeves's communication refers to the importance of such lipins as lecithin and cholesterol. It is fairly well established that there is an excess of lecithin in the cancer cell and that there is also a high cholesterol concentration. Reeves states that the increased iodine value observed in the fat of tumours is probably due in no small part to increased cholesterol content. I do not think that cholesterol would have any marked influence in the direction of unsaturation change. For example, if dioleopalmitin with a molecular weight of 858 and an iodine value of 59·2 have added to it a gram-molecular equivalent of cholesterol the rise in iodine value is 2·0. If, instead, lecithin be added in the same proportion, there is a rise of 1·9 units; if triolein be added, there is a rise of 13·7 units; if oleic acid be added, there is a rise of 7·6 units. In these computations lecithin, for the purpose of the argument, is taken to be dioleolecithin, although, like kephalin, it is generally assumed to have both a saturated and an unsaturated fatty acid in its molecule. If to a gram-molecular equivalent of triolein with a molecular weight of 884 and an iodine value of 86·2 a gram-molecular equivalent of dioleolecithin with an iodine value of 63·2 be added, then there is a depression of 11 units in iodine value. Under similar conditions, with cholesterol, the depression is 6·2. From these figures it will be seen that cholesterol and lecithin exert very little influence on saturation change, even though they have been associated in my calculation with neutral fat in such large proportions. Thus, in the case cited by Reeves, where Wacker has found a 66 per cent. increase in cholesterol, the increase in iodine value of an aliquot portion of the fat from this tissue would be in the neighbourhood of 1·3.

Dioleopalmitin and dioleostearin each give iodine values closely approximating to that of the fat of normal adipose tissue. In cancer, however, the minimum values of invaded fat is in the neighbourhood of 65. If, as the result of certain pathological processes, there is an increased accession to the fat of such lipins as cholesterol and lecithin, there is practically no change in the iodine value of the fat provided the original value is near the cholesterol and lecithin values—65·8 and 63·2. If, however, the original iodine value of the cancerous fat is in the neighbourhood of 70 (the common figure found in our research work) then a marked increase of these two accessory lipins would produce a depression rather than a rise in the iodine unitage. This is demonstrable by a single hypothetical example. If triolein and lecithin are mixed in gram-molecular equivalents, there is a depression in the iodine value of triolein of 11 units. It would seem then that the threshold iodine value of fat change—i.e., the level at which it is liable to change in saturation from the addition of lecithin and cholesterol—is well under 65, and approximates to the level of the normal. The rôle of these lipins in influencing saturation change in cancer is, therefore, negligible, although it is conceivable that lecithin more than cholesterol, in virtue of its potentiality of lecitholytic change with the production of free oleic acid, might influence saturation change. Oleic acid added to dioleopalmitin (gram-molecular equivalents) produces a rise in iodine value of 7·6 units. It is quite obvious that in the tissues the amount of free oleic acid would not be so high as this relative to the amount of neutral fat, and it seems feasible to postulate that the major factor concerned in giving the high unsaturation index so characteristic of the fats in cancer is an oxidase mechanism whose main sphere of operation is confined to the fatty acid constituent of the fat or lipin molecule.

Reeves finds a distinct hypercholesterolemia associated with malignant disease. Work on the cholesterol content of the blood has been carried out at the Glasgow Cancer Hospital for over a period of a year, and a paper embodying the findings will shortly be published in the *British Journal of Experimental Pathology*. In the main, the results found indicated a slight hypocholesterolemia, although in view of the conflicting literature on the cholesterol of the blood it is difficult to establish a condition either of hyper- of hypo-cholesterolemia. In the literature consulted, four or five different "normal" cholesterol values ranging from 0·09 per cent. to 0·25 per cent. are given for the cholesterol concentration in serum. In the paper referred to above, there is a description of a uniform technique for the estimation of this substance. Seventy cases were evaluated and it was found that a seasonal rhythm existed in cholesterol concentration, so that the "normal" figures already referred to were included in the range. This concentration rhythm extended to normal cases, and a comparison of these with malignant cases gave an indication of a slight decrease in the percentage content of cholesterol.

One would naturally expect a hypercholesterolemia, since autolytic change in tumour areas is bound to flood the tumour tissue with cholesterol which is an inert compound, easily thrown out of tissue-coördination, because of its insolubility and low reactivity, but it seems that the blood uptake of this substance is counterbalanced by its absorption by the tumour mass. I am, Sir, yours faithfully,

ARCHIBALD N. CURRIE, M.A., B.Sc., A.I.C., F.C.S.,
Biochemist, Research Department, Glasgow Royal Cancer Hospital.
Oct. 22nd, 1924.

ERYTHEMA NODOSUM.

To the Editor of THE LANCET.

SIR,—I should be grateful if any practitioner among your readers who has met with cases of erythema nodosum in endemic or epidemic form, or has seen examples of the infectious nature of this disease, would communicate with me on the subject.

I am, Sir, yours faithfully,
G. F. WALKER, M.B., Ch.B.
General Infirmary, Leeds, Oct. 27th, 1924.

FACT AND THEORY IN RADIOTHERAPY.

To the Editor of THE LANCET.

SIR,—Prof. Russ is aggrieved because I said "One cannot 'lift' the results obtained by experiments on animals and apply them forthwith to the human subject." Now, to lift and apply forthwith means, if it means anything, to repeat, *without modification*, the procedures applied to the animal, and to expect, in man, precisely the same results as were obtained in the animal. I submit that we are not so closely related to cavies and conies, not to speak of representatives of the genus *mus*, that experimental results may be so applied to us. And I shall be much surprised if anyone actually engaged in the practice of medicine holds a different view. To say this is not in any way to deprecate the value of such experiments.

I am, Sir, yours faithfully,
F. HERNAMAN-JOHNSON.
Harley-street, W., Oct. 27th, 1924.

THE LATENT INTERVAL IN FUR DERMATITIS.

To the Editor of THE LANCET.

SIR,—All who have had special experience in dermatology will agree with the general conclusion stated in the last sentence of the excellent memorandum[1] issued recently by Dr. A. C. Parsons, in which he says, "Defective or careless technique or the use of potentially dangerous dyes is, therefore, in all probability the cause of the fur dermatitis in the circumstances under consideration." There is one elusive point, however, that deserves comment. The rash in its early stages is of a papulo-erythematous type, and results from the application of an external irritant. In some cases it follows shortly after exposure, just as it would follow the application, say, of mustard or of cantharides. The report, however, states that in most patients there is a latent interval varying from two to six weeks or more. Why this assumption of latency over so long a period? One would not expect the effects of a mustard leaf to be delayed for six weeks "or more." On what principle is this assumption of delayed action to be explained in the case of the incriminated fur?

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[1] THE LANCET, Sept. 6th, p. 505.

Various fallacies have already been indicated by Dr. Parsons. Since answering his official circular letter asking for information I have made a further observation that appears to point to an additional pitfall, as follows. For a long time I had been puzzled, as many others must have been puzzled, by the frequent answer made by patients, when told that their skin trouble was due to a fur, that it could not possibly be due to the fur, for it had been worn the previous winter, and had caused no rash. The fallacy of this dawned upon me one day when I noticed that the fur at the edge of the collar had been worn away and flattened down so that the patient's neck came into contact with the hide as apart from the actual hair; this altered condition probably explained both present susceptibility and former immunity. When we consider the structural difference between the fur and the underlying hide it becomes reasonably clear that the chemical irritant presumably concerned in most cases of fur dermatitis would be much more likely to be retained in the hide than in the hairs. Ergo, while a fur collar is new and the hair intact the neck of the wearer does not come into contact with the irritant accumulated in the hide, whereas when the hair is displaced or worn away the skin presses against the saturated hide, and dermatitis is the result.

This explanation avoids the assumption of a latency in these cases that is not in accordance with general dermatological experience.

I am, Sir, yours faithfully,

London, W., Oct. 27th, 1924. DAVID WALSH.

INTRA-OCULAR TENSION IN MYOPIA.

To the Editor of THE LANCET.

SIR,—I venture to state that few, if any, ophthalmic surgeons accept Dr. Edridge-Green's theory of the production of myopia. All the organs of the body vary in size in different individuals, and if we are to attribute the large or myopic eyeball to a pathological mechanism, then to what are we to attribute the more prevalent small, or hypermetropic, eyeball? It is accepted that myopia is commoner among schoolgirls than boys, and it was so long before gymnastics were introduced into schools. Sixty per cent. of myopic scholars are girls. Artificial myopia, or myopia due to spasm of accommodation, does "diminish or become emmetropic," but true static or ordinary myopia probably never disappears. The size of the eyeball is, in my opinion, determined by the factor of heredity. There are some exceptions to this finding. About 10 per cent. of myopes have corneal opacities, the result of keratitis. In this disease it is probable that toxins pass through the cornea and filter back along the coats of the eyeball, causing softening, and, later, stretching, at the sclero-corneal junction, or at the posterior segment of the eyeball.

I am, Sir, yours faithfully,

Cambuslang, Oct. 25th, 1924. J. A. WILSON.

AUTO-HÆMAGGLUTINATION IN PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

SIR,—I have read with great interest the article on this subject by Dr. H. Cohen and Dr. A. Roby Jones in your issue of Oct. 25th. Auto-agglutination of the red blood corpuscles is a phenomenon which occurs comparatively frequently in certain tropical fevers—notably trypanosomiasis. So frequently has it been observed in this disease, that at one time it was even suggested that the phenomenon of auto-agglutination in a thick drop was diagnostic of trypanosome infection. It is not invariably so; but it is highly suggestive. During the last three years I have had two cases of trypanosomiasis in which auto-agglutination occurred and prompted me to search a blood-film further for trypanosomes with ultimate success.

1. A patient consulted me in June, 1922, on his return from N. Rhodesia, where he had been treated for trypanosomiasis marked auto-agglutination of his red blood corpuscles was observed, and prolonged search revealed *Trypanosoma rhodesiense* from which infection he died six months later.

2. A Government official from the Gambia consulted me in June, 1924, complaining of general weakness and malaise. Marked auto-agglutination of his red blood corpuscles was present, and further search revealed comparatively numerous *Trypanosoma gambiense*. Since that date he has been vigorously treated with "Bayer 205" and tryparsamide with the result that he is now in normal and excellent health. When seen in October the auto-agglutination phenomenon was still observed, though there are now no signs of anæmia and his blood count and hæmoglobin percentage are normal.

3. A very anæmic clerk from the Gold Coast consulted me on Oct. 14th; his spleen was enlarged. The diagnosis rested between subtertian malaria and trypanosomiasis. Marked auto-agglutination of his red blood corpuscles was present, while numerous subtertian malaria parasites were found. He has now almost entirely recovered, though the auto-agglutination phenomenon is still present.

It therefore appears that the phenomenon is of practical diagnostic importance in tropical fevers and from the evidence in the second case I have cited it does not necessarily appear to be associated with any ascertainable anæmia.

I am, Sir, yours faithfully,

London, W., Oct. 25th, 1924. PHILIP MANSON-BAHR.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—Dr. Kerr states that "there are about 5000 names on the Dental Register of whom about 3000 are fully trained." If he will examine the Dentists Register for 1924 he will find that it contains the names of 13,473 dentists, of whom 6172 are fully qualified dental surgeons. The date of the report of Sir George Newman on which Dr. Kerr bases his imaginary "shortage of dentists" is the year 1920. Is it possible that Dr. Kerr is unaware of all that has happened in the dental world since then? I can assure Dr. Kerr, and I speak from intimate knowledge of the facts, that there is no shortage of fully qualified dentists for any necessary extension of the school dental service. The numbers applying for every such appointment give sufficient proof of that. When Dr. Kerr speaks of the work done by dental hygienists in America, is he aware of the difference between the work done by these persons and that at present done by dental dressers in Derbyshire?

I am, Sir, yours faithfully,

ROBERT LINDSAY.

Dental Secretary, British Dental Association.

Russell-square, London, W.C., Oct. 27th, 1924.

*** We note that the Dental Board on Oct. 7th received a communication from the Derby county medical officer of health in connexion with the sanction of the Minister of Health to the employment of three trained dental dressers on minor dental work under the personal supervision of a registered dentist for the treatment of children under school age. The Maternity and Child Welfare Committee of the county expressed itself as satisfied if the dentist was allowed to supervise the work of only one dental nurse working at the same time as himself, provided that the work which the dental nurses were allowed to do included (*a*) examinations with probe and mirror; (*b*) extractions and treatment of temporary teeth; and (*c*) treatment of the first permanent molars. The Board, however, resolved to adhere to the recommendations of the previous Board in regard to this matter.—ED. L.

Obituary.

WILLIAM HENRY B. AIKINS, M.D. TORONTO, L.R.C.P. LOND.

Dr. W. H. B. Aikins, consulting physician to the Toronto General Hospital and a well-known Canadian authority on cancer, died suddenly from angina pectoris while at his consulting rooms in Toronto on Oct. 3rd, in his sixty-sixth year. A son of the late Hon. J. C. Aikins, he was born in the Peel County and was educated at Upper Canada College. In 1881 he graduated in medicine from the University of Toronto, and in the same year came to England and obtained his L.R.C.P. Lond. After doing post-graduate work in New York, Edinburgh, and Vienna, he entered into practice at Toronto in 1884, where he acquired a large consulting connexion and became an outstanding figure in the Toronto medical world. A keen student of his profession and quick to take advantage of scientific advance in treatment, he was one of the first of his colleagues to use radium. He organised the American Radium Society, of which he was one of the first presidents. For many years he was physician to the General Hospital, Toronto, and was on the consulting staff at the time of his death. At one time he was consulting physician to the Toronto Hospital for Incurables and the King Edward Sanatorium, with which latter institution he was connected for some 10 years. Dr. Aikins was a prominent figure in many medical societies; he held the office of president of the Toronto Clinical Society and had a guiding hand in the Ontario Medical Association, the British Medical Association, and the Mississippi Valley Association. In 1907 he was elected as vice-president of the Canadian Medical Association, and for 15 years he acted as Senator of the Toronto University, representing the medical graduates. Dr. Aikins took a keen and active interest in international medical problems. In 1909 he was secretary for Canada at the International Medical Congress in Budapest, while in 1916 he held a similar office at the Lisbon Congress. He was a Fellow of the Canadian College of Physicians and a member of the Royal Canadian Institute in London. Well known as one of the proprietors and editors of *The Canadian Practitioner*, Dr. Aikins made many contributions to medical literature and was the author of the "Radium Treatment of Rodent Ulcer, Cancer, and Keloid" which was published in 1910. He was a prominent Freemason.

Dr. Aikins made many professional friends both in England and abroad, and his advice was keenly sought by—and freely given to—his young professional colleagues in all countries. He married in 1887 Augusta, daughter of the late Dr. Easton Hawkesworth, who survives him.

NATHANIEL THOMAS BREWIS, M.B., C.M., F.R.C.P. & S. EDIN.

WITH the death of Dr. N. T. Brewis at his house in Drumsheugh-gardens, Edinburgh, on Oct. 21st, in his sixty-ninth year, the Edinburgh Medical School loses a well-known gynæcological surgeon and a popular teacher.

Nathaniel Thomas Brewis was born at Eshott Hall, Northumberland, in 1856, was educated at the Edinburgh Institution and Edinburgh University, graduating M.B., Ch.M. in 1882, after which he held posts as house surgeon in the Royal Infirmary of Edinburgh and the Glasgow Maternity Hospital. In 1886 he became a Member of the Royal College of Physicians of Edinburgh, and was elected to the Fellowship in the following year; in 1899 he was elected a Fellow of the Royal College of Surgeons of Edinburgh. Early in his career he became interested in diseases of women and specialised in this branch. He confined his work entirely to gynæcology and developed a large private practice. The special features of his operative work were his careful technique, his striking dexterity, and the marked deliberateness with which every detail was performed. For a great number of years Dr. Brewis was associated with the gynæcological wards of the Royal Infirmary of Edinburgh, first as clinical assistant and assistant surgeon, and subsequently as gynæcologist in charge. He was lecturer and examiner to the University and the Royal College; he was ever a popular lecturer and will be remembered by his students both as a careful teacher and a sympathetic examiner. Formerly he held the post of gynæcologist to Leith Hospital, and to the time of his death occupied the post of gynæcologist to the New Town Dispensary. Everything was well arranged to the last detail at the nursing home in Cambridge-street, with which he was closely connected for a great number of years. He was the author of "Outlines of Gynæcological Diagnosis," and also contributed the article in the Encyclopædia Medica on "Displacements of the Uterus." The bulk of his writings, however, are to be found in the Transactions of the Obstetrical Society of Edinburgh of which he was at one time president. Among these are "A Series of Abdominal Sections," "Some Renal Cases," "Case of Pregnancy Complicated by Fibroid Tumours and Treated by Hysterectomy," and "Six Cases of Vaginal Cæsarean Section." He was a Fellow of the British Gynæcological Society, the Medico-Chirurgical Society of Edinburgh, and the Royal Medical Society of Edinburgh.

Brewis was keenly interested in Rugby football; in early days he played for his school, and later was one of the founders of the Edinburgh Institution Former Pupils Football Club. As a student at the University he represented Scotland on six occasions, in 1876 and 1878 against England, and in 1879 and 1880 against England and Ireland. He always maintained his interest in the game, and was at one time president of the Scottish Rugby Football Union.

During the last few years of his life, in fact from the time of his retirement from the Royal Infirmary, his health had not been good, and lately he had been able to do very little. He was twice married, and is survived by his widow, a son, and a daughter.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Oct. 22nd, the Vice-Chancellor (Prof. E. A. Gardner, Litt.D.) being in the chair, a University chair of anatomy tenable at the Middlesex Hospital Medical School was instituted as the result of a munificent gift of £20,000 by Mr. S. A. Courtauld. The title of the chair will be "The S. A. Courtauld Chair of Anatomy," and Dr. Thomas Yeates, at present University professor of anatomy at the School, was appointed as the first occupant.

UNIVERSITY OF GLASGOW.—At the graduation ceremonial on Oct. 20th the following degrees were conferred:—

M.D.—George A. Allan (with honours), Andrew Climie (with commendation), John A. Doctor, Alexander H. Hall, and William L. Templeton.

M.B., Ch.B.—With honours: Gavin M'Callum. With commendation: Edgar A. Underwood, John C. D. Mitchell, George G. Macphee, William Mackay, and John Hamilton. James A. Adie, Archibald D. P. Alexander, John L. Allan, Ruth M. Allinson, Christina M. Anderson, James A. Barrie, Jessie L. Barrie, John B. Bennett, James Boyd, William Brackenridge, Francis H. Brisby, James B. P. Brown, James Buchanan, John A. Buchanan, Joseph Byers, Allison W. Cameron, Donald E. Cameron, David H. Campbell, Peter Campbell, Margaret E. Chalmers, James H. Chisholm, George Christie, James C. Clark, Ellen M. Clow, George A. Cormack, Annie T. Crookes, James T. Curran, William Cuthbertson, Joseph J. B. Dias, Robert Dick, Alfred T. B. Dickson, Enid M. Dixon, Alexander C. Douglas, Margaret C. Douglas, Robert Drummond, James M. Duff, Alexander Dunlop, Annie K. Easson, Ronald C. Fergus, John Ferguson, Joseph E. Fisher, James Flind, Margaret S. Ford, Robert D. Forrest, Thomas E. Gilchrist, William Glasgow, Mary S. Glen, Robert M. Gordon, George G. Graham, Thomas F. Greenhill, Grant R. Gribben, James Hamilton, John N. Hamilton, Isabella M. Harkness, Archibald C. Holms, Esther S. Hood, Jean F. Howie, Andrew B. H. Irvine, Helena J. S. Irving, William C. Jack, Elinor D. Jackson, John Johnston, John A. Ll. V. Jones, John Kyle, Robert L. Leask, Douglas M. Leroux, Beryl P. Lye, Mungo M. M'Clelland, Elizabeth L. M'Corquodale, Dhul A. M'Cowan, Robert M'Cracken, Thomas M'Culloch, Robert K. M'Dougall, Hugh A. G. MacEwen, Malcolm MacEwen, Daniel M'Farlane, Josephine M. Macfarlane, John Macfie, William J. M'Intosh, Christian W. F. MacKay, Ian A. Mackay, John Mackay, William Mackay, Alexander R. M'Kelvie, William MacKenzie, Murdo Maclean, Neil M'Lean, Alexander J. Macleod, Coinneach B. Macleod, James M'Whirter, Elizabeth M. S. Meek, Gavin Millar, Hugh V. R. Miller, Patrick J. Molloy, James A. Montgomery, Edward J. Morgan, Robert R. Morrison, Christian D. F. Morton, Robert Morton, Walter D. Muir, William P. Muir, Margaret K. Murray, James Myles, Samuel M. Newman, Alexander Nicolson, Archibald Ogg, Tsoh-Chen Pan, William Parker, John Petrie, Alexander M. Pollock, Alexander D. M. Pyle, John Pyle, John A. C. Randall, Dorothy E. D. Rankin, Mary A. Rigby, Peter M. Ritchie, Edith M. Roberts, Graham M. Robertson, Harold C. Robertson, Helen I. Robertson, Andrew B. F. Rodger, Alfred R. Rooke, Alexander Rose, William Russell, Leslie G. Scoular, Peter M. Shepherd, Thomas R. Sinclair, Leo F. Skinnider, Isobel U. Sloan, Gilbert J. Smith, James K. S. Smith, Ian F. Somerville, Mary C. Stevenson, Mary S. Stevenson, Peter H. Stewart, John M. Stirling, Annie R. Stuart, Barbara S. Tulloch, George W. Vaughan, John G. Warnock, John Waters, Elizabeth M. Weir, Hamish M. Weir, John A. Wilson, and Frances D. Young.

Gavin M'Callum gains the Brunton Memorial Prize of £10 awarded to the most distinguished graduate in medicine of the year, and Elinor D. Jackson gains the West of Scotland R.A.M.C. Memorial Prize awarded to the candidate who obtained the highest aggregate marks in the Final Examinations held during the year 1924.

Royal Society of Medicine: Annual Dinner.—It has now been decided that private guests, including ladies, may be invited to the dinner on Nov. 26th, and that the tables are to be arranged so as to accommodate parties of friends and guests.

British Medical Association: Annual Council Dinner.—The third annual Council dinner of the British Medical Association was held in Edward VII. Rooms, Hotel Victoria, London, on Wednesday, Oct. 22nd, when Dr. R. A. Bolam, chairman of Council, presided. There was a large and distinguished attendance, including the Directors-General of the Naval and Army Medical Services, the President of the Royal College of Physicians, the newly elected President of the College of Physicians of Ireland, the Registrar-General, Sir Lister Scott, Lord Dawson of Penn, Sir Philip Magnus, Sir Henry Craik, and the Presidents of the various sister medical societies. The toast of "The Retiring Officers" was proposed by Dr. E. K. Le Fleming, who likened the retiring chairman of the Representative Body to the police officer on point duty at an important traffic centre borne down upon by omnibus resolutions and riders, but always able to direct the traffic safely and expeditiously. He spoke of the retiring President of the Association as one who had infected his colleagues with his genial personality, and who as host, city father, and friend of the poor, had greatly served his fellows. Mr. C. P. Childe, in replying, dwelt with pleasure on the fact that the holder of the office was necessarily one who held the confidence of his colleagues. Dr. Wallace Henry, in replying, recalled some of the important events in his three eventful years of chairmanship, when the constitution had been revised, a working agreement reached with the public health service, and affiliation completed with the Canadian Medical Association. The toast of "The Common Health" was proposed by Dr. H. B. Brackenbury, who recognised that it went far beyond the medical profession and its concerns. Were our towns well planned, every one given a proper house and smoke done away with, that would do more than the medical profession alone could do in many years. He hoped that more men and women would serve on public bodies and take their share in the common health. He objected to the distinction, now obsolete, between preventive and curative medicine. "Antenatal care and treatment is preventive midwifery; immediate post-natal care and treatment is preventive gynæcology." Education and health were but two aspects of the same thing. Sir George Newman, who responded, acknowledged the disinterested struggle of the Association to win and maintain the common health. He reminded the gathering of the tercentenary of Sydenham, who not only laid the foundation of medical practice but was himself practitioner and public servant in one. The National Insurance scheme he characterised as a concrete attempt to reduce the economic difficulties of the patient which prevented him from getting the full benefit of medical knowledge. The toast of "Our Guests" was proposed by Mr. N. Bishop Harman in a witty speech, to which response was made by Sir Arthur Robinson, First Secretary of the Ministry of Health, Sir StClair Thomson, President of the Royal Society of Medicine, and Dr. G. H. Simmons, late editor of the *Journal of the American Medical Association*. Dr. Simmons contrasted the problems of the American and British associations, and set out the enormous difficulties of distance with which the American Association had to cope. In spite of these it had grappled successfully with the great problem of medical education, in regard to which he gave some striking figures. Mr. H. S. Souttar proposed "The Chairman," who responded in a few well-chosen words. A pleasant programme of vocal and instrumental music filled up the gaps in a crowded evening.

St. Thomas's Hospital Old Students' Dinner.—About 160 old students of St. Thomas's and their guests were present at the dinner in the Princes Restaurant, Piccadilly, on Oct. 24th, at which Dr. Seymour Taylor occupied the chair. In proposing the toast of St. Thomas's Hospital and Medical School the chairman made an amusing speech and referred to the day he had visualised in dreams when it would be possible to perform a surgical operation for mitral stenosis. The toast was responded to by the treasurer of the hospital, the Hon. Sir Arthur Stanley, and by the Dean of the Medical School, Sir Cuthbert Wallace. Sir Cuthbert Wallace spoke feelingly of the loss the hospital had sustained through the death of Prof. S. G. Shattock, for many years curator of the museum, which was now called the Shattock Museum, and of Sir Archibald Reid, former radiologist to the hospital. Dr. Henry Gervis, who had died recently, had obtained his first appointment to the old hospital in the borough. During the year the King had conferred honours on three St. Thomas's men. In speaking of the present athletic record of the Medical School, the Dean remarked that although the students had not carried off the palm on the football field, St. Thomas's Hospital nurses had beaten Guy's Hospital nurses in the final of the Inter-hospitals tennis tournament. "The Chairman" was then proposed by Sir Cuthbert Wallace, and he gave a graphic description of how Dr. Seymour Taylor had taught him anatomy. Dr. Seymour Taylor replied. The visitors were welcomed by Sir George H. Makins, and Sir John Bland-Sutton also spoke. Among the guests were Dr. C. R. Box, Sir Charles Scott Sherrington, Sir William B. Leishman, Surgeon Vice-Admiral J. Chambers, Sir Charles A. Ballance, Sir Richard Havelock Charles, Sir Hector Mackenzie, Sir Seymour J. Sharkey, Dr. H. G. Turney, Mr. Percy Sargent, Mr. G. A. Maling, V.C., and Dr. Ingleby Oddie.

Chelsea Clinical Society: Annual Dinner.—This society held its annual dinner at the Café Royal on Oct. 21st. Dr. Gordon Lane, the President of the society, occupied the chair, and nearly 100 members and guests were present. Amongst the latter were the Presidents of the Medical Society of London, the Royal Society of Medicine, and the Hunterian Society, the Dean of the Cancer Hospital, the Officer Commanding the Royal Military Hospital, Millbank, and representatives of *The Lancet* and the *British Medical Journal*. In proposing the toast, "The Progress and Prosperity of the Chelsea Clinical Society," Sir StClair Thomson expressed enthusiasm for the work accomplished not only by the central societies, such as the Medical Society of London, but of their very vigorous grandchildren of which the Chelsea Society is a notable example. Dr. Lane, in reply, referred to the rapid progress of the Chelsea Society, which, with a history of only 28 years, is to-day in a more flourishing position and has a larger membership than ever before. A special feature of this society is the manner in which it brings the local practitioner into close association with the consultants, both branches having equal representation upon all its committees. Judicious management and the careful selection of the programme for each session has led to great popularity, especially with medical men who have recently embarked upon general practice, and it is especially towards these that the society extends a welcome. The President announced that the forthcoming programme of the society includes, besides clinical evenings, discussions on the maladies common to the four great periods of life: infancy, adolescence, the climacteric, and senility. Dr. Eric Pritchard, Dr. A. P. Beddard, Sir Thomas Parkinson, and Dr. Leonard Williams are to be the principal speakers at these meetings. The health of the guests and the President was drunk with acclamation, and some delightful singing by the Westminster Singers added to the enjoyment of the evening.

Fellowship of Medicine and Post-Graduate Medical Association.—A comprehensive course in venereal disease will be held at the London Lock Hospital (Dean-street) from Nov. 3rd–29th. The course will consist of clinical work every day in the wards and out-patient departments and a daily formal lecture on the different aspects of this disease. Also beginning on the same date is a month's course in dermatology at the St. John's Hospital for Diseases of the Skin. Demonstrations will be given in the various departments, including laboratory work, and, twice a week, lectures at 5 p.m. From Nov. 10th–22nd St. Mark's Hospital will hold a course in proctology comprising operations, demonstrations, and lectures by members of the staff. A course in gynæcology has been arranged by the Chelsea Hospital for Women from Nov. 21st to Dec. 6th. Clinical demonstrations and lectures will be given in the wards and out-patient department, together with operations and formal lectures. Full particulars of any of the foregoing courses will be sent on application to the Secretary of the Fellowship, 1, Wimpole-street, W.

Royal Dental Hospital of London.—A course eight post-graduate lectures will be delivered in the :hool of Dental Surgery at the hospital at 5 P.M., between ov. 19th and Jan. 23rd next. The lectures are open to 'actitioners, advanced students, and others interested in the ıbjects. Admission is free, without ticket.

Institute of Hygiene.—At the recent annual eneral meeting of the Institute at 33–34, Devonshire-street, ondon, W., the following office-bearers were elected: r Thomas Oliver to be President, in succession to the te Sir Malcolm Morris; Prof. John W. H. Eyre to be a ice-President: Dr. Soltau Fenwick, to be Chairman of the eneral Council; and Mr. Robert H. Elliot, F.R.C.S., to Vice-Chairman. Mr. Grant Ramsay, who founded the stitute of Hygiene 21 years ago, retired as Principal of ıe Institute at the end of last month.

Royal Southern Hospital, Liverpool.—A series rooms specially equipped for electro-therapeutic treatment ıd massage have been added to the orthopædic department this hospital. These were formally declared open by ord Derby on Oct. 24th as part of the commemoration of ıe jubilee of the hospital. Special features of the department include the apparatus for remedial exercises, baths, ıd arrangements for ionic medication. It is also intended form a school for the training of students in electroıerapeutics and medical gymnastics.

University of Leeds.—Dr. F. S. Fowweather has een appointed to the Lectureship in Chemical Pathology :cently instituted. Dr. Fowweather graduated with firstass honours in chemistry (first division) at Liverpool niversity in 1914, gaining the Isaac Roberts scholarship ıd the John Willox exhibition. After a year's research he as awarded the M.Sc. degree, and he is also a Fellow of the ıstitute of Chemistry. Later Dr. Fowweather took up the udy of medicine and graduated M.B., Ch.B. at Liverpool niversity in 1922, subsequently obtaining the Diploma in ublic Health. He has been in general practice in llesmere Port, and has had chemical experience in industry.

Cancer Research Prize.—The committee of the hristie Hospital, Manchester, offers a prize of £300 for ıncer research. Candidates must be qualified in medicine in science cognate to medicine and must submit evidence original research work bearing on cancer done and rojected, which shall in the opinion of the assessors qualify ım for the prize. The object of the prize is to support search work already in progress. The assessors will take to consideration promising work which might fail for ant of financial help. The successful candidate will be quired to send results of his work in a report ready for ublication, or to give a lecture in Manchester. The prize ill be awarded in two instalments. The competition is pen to research workers of any nationality provided that l documents are submitted in the English language. pplications must be sent to the Chairman of the Medical oard, Christie Hospital, Manchester, on or before Dec. 31st, 924. The decision of the assessors shall be final, and they ıall have power to divide or withhold the prize as they ıink fit.

NFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 18TH, 1924.

Notifications.—The following cases of infectious disease 'ere notified during the week, namely:—Small-pox, 80; :arlet fever, 2165; diphtheria, 1091; enteric fever, 104; neumonia, 698; puerperal fever, 52; cerebro-spinal fever, ; acute poliomyelitis, 28; acute polio-encephalitis, 12; ıcephalitis lethargica, 43; continued fever, 2; dysentery, ; ophthalmia neonatorum, 114. There were no cases of holera, plague, or typhus fever notified during the week. ine of the 12 cases of acute polio-encephalitis were notified :om Liverpool. The cases of small-pox were reported from he county of Chester, 1 (Dukinfield); Derbyshire, 12 Derby, 4; Bolsover, 1; Chesterfield, 2; Chesterfield R.D., 3; Clowne, 2); Lancaster, 17 (Ashton-under-Lyne, 1; Hurst, 6); Leicester, 7 (Melton Mowbray); Lincoln, 6 (Gainsborough); Northumberland, 7 (Ashington); otts, 3 (Mansfield, 2; Mansfield Woodhouse, 1); Warwick, (Nuneaton, 4; Meriden R.D., 1); Yorks N. Riding, 6 Middlesbrough, 5; Eston, 1); Yorks W. Riding, 6 Rotherham).

Two corrections are made in the return; the reported ›tals for encephalitis lethargica and continued fever for he week ended Oct. 11th should have been 44 and 10 respecively. A case of typhus fever shown for the week ended ›ct. 4th should have been a case of enteric fever.

Deaths.—In the aggregate of great towns, including London, here were 9 deaths from enteric fever, none from small-pox, from scarlet fever, 29 from diphtheria, 13 from measles, 4 from influenza. In London itself the diphtheria deaths umbered 14 and the deaths from infantile diarrhœa fell to 21.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov 4th.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Mr. Paul Bernard Roth: (1) Cases of Torsion of the Tibia. (2) Case of Fracture Dislocation of Head of Radius.
Mr. Muirhead Little: Case of Neglected Injuries to both Knee-joints.
Cases will also be shown by Mr. Bristow and others.

PATHOLOGY: at 8.30 P.M.
Laboratory Meeting at the Inoculation Department, St. Mary's Hospital, Paddington.
Sir Almroth Wright: Some New Technique.
B. J. Collingwood: The Influence of Gravity on the Diffusion of Dissolved Carbon Dioxide.
J. Freeman: Protein Idiopathy Experiments.
R. M. Fry: Demonstration of the Proteolytic Properties of Hæmolytic Streptococci.
L. Colebrook: Enumeration of Bacteria in Blood in Septicæmia.
A. Compton: Demonstration of Blood-urea Estimation by Ambard's Apparatus.
Joan Ross: Staining of Actinomycosis Clubs.
W. D. Newcomb and Joan Ross: Demonstration of Pathological Specimens.
A. Fleming: A Simple Method of Removing Leucocytes from Blood.

Wednesday, Nov. 5th.

SURGERY: at 6 P.M.
Presidential Address:
Mr. H. J. Paterson: The Lure of the New.

Thursday, Nov. 6th.

OBSTETRICS AND GYNÆCOLOGY
EPIDEMIOLOGY AND STATE MEDICINE
SOCIETY OF MEDICAL OFFICERS OF HEALTH } at 8 P.M.
Joint Discussion on the Notification of Puerperal Sepsis.
The following have promised to speak:—
Dr. R. Dudfield and Dr. W. Butler, Section of Epidemiology and State Medicine; Dr. R. A. Lyster and Dr. J. Cates, Society of Medical Officers of Health; Dr. Herbert Williamson and Dr. J. S. Fairbairn, Section of Obstetrics and Gynæcology.

Friday, Nov. 7th.

LARYNGOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases will be shown by Mr. C. Gill Carey, Mr. G. W. Dawson, Dr. E. W. Goodall, Sir James Dundas-Grant, Dr. Irwin Moore, Mr. E. Broughton Barnes, and others.

ANÆSTHETICS: at 8.30 P.M.
Paper:
Mr. F. T. G. Hobday: The Selection and Administration of Local and General Anæsthetics for Animals (with epidiascopic illustrations).

COMPARATIVE MEDICINE:
Members of the Section of Comparative Medicine are specially invited to attend this Meeting.

Saturday, Nov. 8th.

OTOLOGY: at 10 A.M. (Cases at 9.15 A.M.)
Presidential Address:
Dr. J. Kerr Love: On Some Neglected Corners of the Otological Field.
Cases will be shown.

ROYAL INSTITUTION, Albemarle-street, W.
MONDAY, Nov. 3rd.—5 P.M., General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East.
TUESDAY, Nov. 4th.—5 P.M., Dr. F. John Poynton: The Prevention of Acute Rheumatism (Bradshaw Lecture).
THURSDAY.—5 P.M., Sir StClair Thomson, M.D.: Tuberculosis of the Larynx; and its Significance to the Physician (Mitchell Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
THURSDAY, Nov. 6th.—5 P.M., Mr. Raymond Johnson: Some Clinical Aspects of Carcinoma of the Breast (Bradshaw Lecture).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.
MONDAY, Nov. 3rd, to SATURDAY, Nov. 8th.—WEST LECTURE HALL, Royal Society of Medicine. Lecture arranged by the Fellowship of Medicine and open to all members of the profession. At 5.30 P.M., Monday, the 3rd inst., Mr. W. Ernest Miles: Cancer of the Rectum.—Diseases of Children (Combined Course) at the Paddington Green Children's Hospital, Victoria Hospital, and Children's Clinic. Special Intensive Course, second week.—HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W. Special Intensive Course in General Medicine and Surgery, second week.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square. Daily demonstrations, pathological demonstrations, and lectures. First week.—LONDON LOCK HOSPITAL, 91, Dean-street, W. 1. Daily clinical work and special lectures on Dermatology, first week.—ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, W.C. Daily clinical work and special lectures on Urology, third week.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 3rd.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—11 A.M., Medical Registrar: Medical Wards. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—11 A.M., Mr. Simson: Gynæcological Wards. 12 noon, Dr. Scott Pinchin: Heart Diseases. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Deparments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, Nov. 4th.—4.30 P.M., Mr. J. Howell Evans: The Pains and Penalties of the Erect Posture.

FRIDAY.—4.30 P.M., Mr. Aubrey Goodwin: Complications of the Menopause.

Daily: Medical and Surgical Clinics and Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.

THURSDAY, Nov. 6th.—4 P.M., Mr. O. L. Addison: The "Doctor's Dilemma" as seen in Surgical Out-patients.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Nov. 4th.—5 P.M., Dr. Knowsley Sibley: Principles of Treatment (Local).

THURSDAY.—5 P.M., Dr. A. M. H. Gray: Eruptions Due to External Irritants.

MANCHESTER MEDICAL SOCIETY (at the University of Manchester).

WEDNESDAY, Nov. 5th.—4.30 P.M., Discussion on Jaundice to be opened by Dr. F. C. Moore and Prof. A. H. Burgess.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, Nov. 4th.—4.15 P.M., Dr. J. Shaw Dunn: Carcinoma of the Kidney.

FRIDAY.—4.15 P.M., Prof. J. S. B. Stopford: The Motor Pathway.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

WEDNESDAY, Nov. 3rd.—(At the Northern Hospital.) Dr. Stopford-Taylor: Common Skin Disorders.

THURSDAY.—(At the Stanley Hospital.) Dr. Wadsworth: Demonstration of Clinical Cases.

FRIDAY.—(At the Royal Infirmary.) Dr. F. Wilson: Modern Treatment of Urethritis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)

TUESDAY, Nov. 4th.—(At the Royal Hospital.) Mr. G. Simpson: Tubercular Kidney.

FRIDAY.—(At the Royal Infirmary.) Dr. Barnes: The Treatment of Diabetes.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.

(Course of Lectures on the Health of the Commonwealth.)

WEDNESDAY, Nov. 5th.—4 P.M., Mr. J. R. Kerr: Invalidity from Chronic Joint Disease.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.

(At the Medical Society of London, 11, Chandos-street, W.)

MONDAY, Nov. 3rd.—6 P.M., Dr. R. G. Rows: Association of Ideas, Recognition, and Memory.

Appointments.

BECKETT, A. J., M.B., Ch.B. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Kidwelly District of the County of Carmarthen.

DUGON, T. H., M.R.C.S., L.R.C.P. Lond., to be an Assistant Director of Medical Service in Nigeria.

SOLLY, E., M.B. Lond., F.R.C.S. Eng., and MILBURN, C. H., M.B., M.S. Durh., to be additional Medical Referees under the Workmen's Compensation Act for the Districts of the Dewsbury and Leeds County Courts.

Manchester Royal Infirmary:—Central Branch: Miss FRANCES A. HOGBEN, M.R.C.S., L.R.C.P., Resident Medical Officer; Miss M. L. P. GOETZE, M.B., B.S., M.R.C.S., L.R.C.P., Assistant Resident Medical Officer.

Royal Eye Hospital, Southwark: HOPE, C. W. M., M.D. Durh., F.R.C.S. Eng., Honorary Rhinologist; LIVINGSTON, A., M.B., Ch.B., M.D.S. Liverp., Honorary Dental Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Third Asst. P. £250.

Bolton County Borough.—Asst. M.O.H. and Sch. M.O. £600.

British Honduras.—Asst. M.O. $2430.

Cape Town University.—Wernher Beit Chair of Pathology.

Chailey, Sussex, Heritage Craft Schools.—H.S. for Orthopædi Surg. Dept. £266.

Cobham, Surrey, Schiff Home of Recovery.—Res. Sec. and Surg Supt. £600.

Durham County Council Education Committee.—Asst. Schoo M.O. £666.

Edinburgh Royal Mental Hospital.—Res. Asst. P. £350.

Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Thir A.M.O. £250.

Hampshire County Council.—Dental S. £500.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £100.

Kensington, Fulham and Chelsea General Hospital, Richmond-road, Earl's Court, S.W.—Sen. and Jun. Res. M.O.'s for si months at rate of £100 and £75 respectively.

Leicester Royal Infirmary.—Two Surgical Dressers. 10*s.* 6*d.* weekly

Liverpool, Alder Hey Children's Hospital.—Res. Asst. M.O. £20

London Hospital, E.—First Asst. to one of the four Med. Firms £400.

Metropolitan Asylums Board Infectious Hospitals Service.—Jun Asst. M.O.'S. £500.

Metropolitan Asylums Board Mental Hospitals Service.—Tw Jun. Asst. M.O.'s. Each £500.

Plymouth County Borough.—M.O.H., &c. £1200.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.— Two Asst. Res. M.O.'s for four months at rate of £8 Also Sen. R.M.O. £100.

Queen's Hospital for Children, Hackney-road, E.—Phys. in charg of Skin Dept.

Rochester, St. Bartholomew's Hospital.—Third Res. M.O. £20

Royal National Orthopædic Hospital, 234, Great Portland-stre W.—Two Surg. Regs. £105.

Royal Naval Medical Service.—Surg. Lieuts. 25*s.* per day.

Royal Northern Hospital, Holloway, N.—H.S., Joint H.P. and Each £75. Also Cas. O. £125.

St. Mary's Hospital for Women and Children, Plaistow, E.— Res. M.O. and Asst. Res. M.O. for six months at rate o £175 and £130 respectively.

St. Peter's Hospital for Stone, &c., Henrietta-street, Coven Garden, W.C.—Third Anæsthetist. £25.

Wallasey, Victoria Central Hospital.—Sen. H.S. Also Jun. H.S £150 and £100 respectively.

West London Hospital, Hammersmith-road, W.—Surg. for Dis. o Women. Dermatologist. Also Hon. Medical Radiologis

The Chief Inspector of Factories, Home Office, London, S.W. announces the following vacant appointments: Folkeston Kent; Shilton, Warwick; Ilkeston, Derby.

Births, Marriages, and Deaths.

MARRIAGES.

CORKEY—EWART.—On Oct. 23rd, at Christ Church, Lisbur I. W. Corkey, M.C., F.R.C.S., of Epsom, Surrey, to Ethe only daughter on F. W. Ewart, of Derryvolgie, Lisburn.

DICK—ROW.—On Oct. 22nd, at the Garrison Church, Woodcot Park Camp, Epsom, James Hamilton Dick, M.C., M.B Ch.B., of Bexhill, to Dorothy Charlotte Martin, elde daughter of Lieut.-Colonel and Mrs. Row, Woodcote Par Camp, Epsom.

DODWELL—SÖRENSEN.—On Oct. 25th, at St. Nicholas, Godston Howard Branson Dodwell, M.B., Ch.B., M.R.C.S., L.R.C.P. to Dorothea Maclagan Sörensen, younger daughter o Marius A. Sörensen.

HALES—LEE-ELLIOTT.—On Oct. 22nd, at the Parish Churc Blakeney, Dr. Henry Ward Hales, of Lees Lodge, Sherin ham, to Charlotte Winifred (Pearl) Lee-Elliott, elder daught of the Rev. and Mrs. D. L. Lee-Elliott, of Blakeney Rector

DEATHS.

ALCINDOR.—On Oct. 25th, at St. Mary's Hospital, John Alcindo M.B., B.Ch. Edin., aged 51.

HOBBS.—On Oct. 20th, at the War Memorial Hospital, Hig Wycombe, after an operation, Frederick William Hobb M.R.C.S. Eng., L.R.C.P. Lond., aged 42.

STORRS.—On Oct. 21st, at Southwood-avenue, Southbourn W. H. Townsend Storrs, M.R.C.S., L.R.C.P.

WATTS-SILVESTER.—On Oct. 13th, suddenly, at Sturminst Newton, Dorset, Thomas Henry Evered Watts-Silveste M.A. Camb., B.Ch., M.B., M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices o Births, Marriages, and Deaths.

ASSURANCE MEDICAL SOCIETY.—The first meetin of the session will be held at the house of the Medical Societ of London on Wednesday, Nov. 5th, when the new Presiden Dr. G. G. Howitt, will give an address on Life Assuranc its Evolution and Progress.

THE LATE DR. O. H. A. MAGGS, J.P.—Olive Henry Arthur Maggs, of Haworth, hon. anæsthetist, Victori Hospital, Keighley, who died in his seventy-third yea on Oct. 19th in a private ward at the Keighley Victori Hospital, had recently retired after practising medicin for nearly a quarter of a century at Haworth and was wel known throughout the Keighley district. A student a Charing Cross Hospital he qualified with the L.S.A. in 189 and for a time was hon. medical officer at Pimlico-road Fre Dispensary, London. At Haworth he took an active par in all branches of public life and was for 18 years a membe of the urban council. During the war he was honorar radiographer, physician, and anæsthetist at the Keighle War Hospital. He leaves a widow and one son.

Notes, Comments, and Abstracts.

ECONOMY IN DRUGS AND DRESSINGS.*

BY COLONEL L. W. HARRISON, D.S.O.,
M.B., M.R.C.P. EDIN.,
SPECIAL MEDICAL OFFICER (V.D.), MINISTRY OF HEALTH.

MY interest in the economy of expenditure of hospital materials was first stimulated by the general need for saving which arose during the war, when, in common with the commanding officers of other military hospitals, I set to work to cut down all unnecessary expenditure of hospital materials. I quickly realised that to instil economy in the use of other peoples' goods into the habits of my subordinates was a much more difficult task than I had anticipated, and it was only by constant watchfulness that waste of the kind which any reasonable person would characterise as idiotic was eliminated. Other commanding officers must have experienced the same difficulties judging by the comparison of costs in different military hospitals. Such an experience was a good preparation for the directorship of the V.D. Department at St. Thomas's Hospital, for which it was clear that the L.C.C. grant, though large, would leave no margin for waste.

Experience at St. Thomas's Hospital V.D. Centre.

Soon after taking over this department I noticed that for every patient suffering from a certain disease a certain mixture was prescribed automatically. The main reason for the prescription was a fear that the patients would think they were not being properly looked after if they received nothing to swallow. I had no objection to a *placebo*, but I suspected that this particular mixture would prove expensive when repeated many thousands of times. A consultation with Mr. Jennings, the chief pharmaceutist of the hospital, confirmed my suspicions, the price of the mixture proving to be over 8*d.* for the usual supply given to a patient. With very little trouble we worked out a prescription with the same therapeutic properties at a quarter the price, and I then had a little talk with my assistants on the subject. I said, first, that the hospital received such and such a grant for my department, so that the cost of any waste would be borne by the hospital, not by some public authority with a bottomless purse. That, of course, a patient must have what he or she really needed, but that, as they knew, many patients required no medicine, while for most others the cheaper prescription which the pharmaceutist and I had evolved, would work just as well as the more expensive which was then being prescribed as routine. My colleagues accepted my suggestions in the spirit I had hoped for, and this was the beginning of numerous little economies which have made this centre the cheapest in the matter of drugs (other than arsenobenzol) and dressings of all such centres in the country. For the patient who won't be happy till he gets a bottle of medicine though he needs nothing, Mr. Jennings suggested two mixtures which cost from one-eighth to a fourteenth the price of our first essay in economy.

Economy in Gloves and Swabs.

The expenditure of rubber gloves in a venereal diseases department is naturally heavy, as the workers in it must wear gloves for their own protection against accidental infection. I suggested that some reduction might be effected by repairing small tears. At first it was thought that repaired gloves would not prove to be safe, but, without further urging on my part, Sister Hutton, who is in charge of the nursing in the section for the treatment of females, took up the suggestion with such good effect that in 1921, when the whole department was working on a daily 8 A.M. to 10 P.M. service, and the attendances were 113,341 the expenditure of gloves was 452 pairs, as contrasted with 1920 when the expenditure of gloves was 611 pairs, though for most of the year only the section for males was open all day and the attendances were over 37,000 less. In the following year, 1922, only 442 pairs were used, though the attendances were 149,682.

Large numbers of wool and gauze swabs are used in the department, particularly for application to the bend of the elbow after venepuncture in the administration of arsenobenzol preparations. The size of each swab appeared to be rather larger than necessary and the amount of wool in each was reduced in 1921 to about two-thirds. It is impossible to state the effect in the amount of wool expended in swabs, as the figures are not separable from the total expenditure on this and other accounts, including ordinary dressings and supplies of wool to the laboratory, but the expenditure of wool in 1922 was £10 less (442 lb.) than in 1921, though the attendances in 1922 were 37,000 more than in 1921.

The result of these economies in drugs and dressings, each of them small enough in itself, is that the cost of drugs and dressings for the past two years has been 1·17*d.* and 1·25*d.* respectively per attendance, or totals of £726 to £654. It may be added that, under the admirable system of accounting at St. Thomas's Hospital, it is possible to arrive at a very close figure of the cost of each section of the hospital. All material for each department is supplied only on requisitions, which are priced and the amount debited against the department. Such a system is a great incentive to economy.

Examples from other Centres.

The experience has proved useful in my work for the Ministry of Health. When the demand for national economy resulted in the recommendations of the Geddes Committee, I feared that the stoppage of all additional expenditure on the V.D. scheme would be the ruin of my hopes of reorganising many treatment centres on efficient lines. I set to work, however, to discover money for such reorganisation as I might think necessary, by pointing out where money was being wasted, and have found a very profitable field in drugs and dressings. Often I have met with surprise that what was considered to be such a trifling matter should be thought worthy of my attention, but I have pointed out to some medical officers that, if the drugs and dressings bill in my own department were on the same scale as theirs, it would amount to over £8000 instead of an actual £726 or less. To cite a few examples :—

1. A hospital at which a small centre had been established had contracted to supply the drugs and dressings for £109 a year. The size of the centre can be gauged from the fact that this small sum worked out at 4*d.* per attendance. One year the hospital applied for a further payment of £260, by which sum they had exceeded their contract, raising the cost of drugs (other than arsenobenzol) and dressings to 1*s.* 2*d.* per attendance. Inquiry into the details elicited that no less than £117 a year was being spent on bandages. I made a guess at the cause of expenditure and offered the opinion that it is not usually necessary to bandage a patient's arm after an intravenous injection. This elicited the retort that it would be dangerous to allow a patient's shirt to come into contact with such a wound. I found later that the venepuncture wound was dressed with at least six layers of cyanide gauze, followed by a large piece of wool and several turns of bandage. Yet no dressing was applied to the much deeper wound in the much less cleanly area of the buttock which was made by way of giving an intramuscular injection to the same patient.

2. In another centre it was discovered, after the failure of the hospital to find any wastage, that in a stock mixture of iodide of potassium was another ingredient with which the iodide was really incompatible, the result being a very inelegant mixture. The cost of the effective ingredient, the iodide of potassium, was 6*d.*, that of the incompatible was 1*s.* 4*d.* The prescription had been in the hospital's pharmacopœia for many years, and the medical officer who had prescribed mist. pot. iodid. to the extent of several thousands of bottles, learnt of the presence of the incompatible and costly ingredient for the first time at a conference between the hospital and the health authority, at which I assisted.

3. In another hospital with a comparatively small turnover and a high drug bill, I found that the expenditure on a proprietary medicated pessary was £105 a year, or 8*d.* per attendance, yet the medical officer was quite ignorant of the cost, and could not name any special advantage of this particular pessary over a substitute I suggested costing a tenth the amount.

Few medical and surgical officers realise the price of the drugs and dressings which they prescribe and often use so lavishly. If they did, a little appeal on the part of the hospitals which they serve would cause them to effect such economies as would be equivalent to very substantial donations to the hospitals' funds.

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* Abridged from the Fifth Annual Report of the Director of Hospital Services, Joint Red Cross Council.

HUMANE SLAUGHTERING OF ANIMALS.

GIVING the third Benjamin Ward Richardson Memorial Lecture, under the auspices of the Model Abattoir Society, on Oct. 23rd, Dr. Chalmers Mitchell, F.R.S., secretary of the Zoological Society of London, said that he proposed to present some evidence drawn from the Zoological Gardens as to the need of humanity and hygiene in the slaughtering of animals and the preparation of their flesh as food, and to urge that the requisite conditions could be best secured in model public abattoirs. Examination of the intestines of mammals and birds showed that the more primitive types in most classes were adapted to an omnivorous diet and that the purely carnivorous and the purely vegetarian habits were more specialised. Man, although the most highly specialised in brain, was more primitive in some other organs, including the intestines, and was more adapted to an omnivorous diet than most of his monkey relations. Until human beings modified their insides and their habits, a meat-supply would, he thought, be required.

At the Zoological Gardens, Dr. Mitchell went on to say, they had to provide meat for carnivorous and omnivorous mammals and birds. The animals chiefly used for this supply were horses and goats and these were killed in a modern, hygienic abattoir. The rifle was used, and although on an average three horses were required in two days, he knew in the last 20 years of only two cases where a second shot had been required. They had tried "humane killers," but at least for horses had found no advantage in their use. He had no personal experience in observing the use of the pole-axe or in the Jewish ritual method, but had examined evidence of experts very carefully. He was quite certain that all methods of electrocution known at present required too elaborate a preparation, upsetting to the animals, and dangerous to the staff, to be recommended. He had come to the conclusion that there was little or nothing to choose between the rifle and the humane killer, the pole-axe or the knife, skilfully used under proper conditions, as the instruments of actual death. But there were many opportunities for carelessness, ignorance, or inhumanity to inflict unnecessary suffering in the preliminaries to the final act. In his opinion these opportunities were least in the case of the rifle, relatively small with the humane killer, definite and probably nearly equal in the case of the pole-axe and the knife. If they were to be reduced to the absolute minimum, this could be done only in a large public abattoir with expert supervision.

In his opinion and experience animals had no presentiment of death, and even the fresh blood and warm offal of their fellows conveyed no message of fear to their consciousness. But they were readily thrown into panic by being driven into unfamiliar places and touched in unfamiliar ways by unfamiliar hands. He urged that every abattoir should have attached to it stables or byres of a kind to which they were accustomed, and that they should be kept in these for at least some hours before being slaughtered, and be tended and finally led out by men familiar with the handling of living animals. There would then be the least chance of panic and therefore of accident in submitting them to the weapon employed.

HYDROMINERAL STATIONS IN ITALY.

The Nord-Sud medical tour to the principal Italian spas, organised by the Italian State Tourist Office (E.N.I.T.) for foreign doctors, took place between Sept. 18th and Oct. 3rd. It was attended by over 50 medical men from England, France, Belgium, Holland, Switzerland, Germany, Poland, Hungary, Denmark, Sweden, and Finland. The tour, starting in Milan and ending in Naples, was made in a special first-class train, and was conducted by Prof. Guido Ruata, M.D., general secretary of the E.N.I.T. The participants were divided into language groups; French, English, and German, and every group was provided with a doctor interpreter. At each spa a graphic lecture was given by a medical authority of the resort, and the doctors were provided with the text of the conference printed in French, English, and German. The lecturers were: Dr. de Alessandri, medical superintendent, at Acqui; Prof. Devuto, of the Milan University, at S. Pellegrino; Dr. Gazzoletti, medical superintendent, at Levico; Prof. Viola, of the Bologna University, at Roncegno; Prof. Zoia, of the Pavia University, at Salsomaggiore; Senator Prof. Queirolo, of the Pisa University, at Montecatini; Prof. Ascoli, of Rome University, and Prof. Sabatini, medical superintendent, at Chianciano; Prof. Nazari, medical superintendent, at Fiuggi; Dr. di Tommasi, medical superintendent, at Agnano. The lectures were followed by inspection of the waters, of the establishments and other interesting points at each resort, under the guidance of the resident doctors, helped by the interpreting doctors. Everywhere the visitors were cordially welcomed. In Milan they were received officially at the palace of the Italian Touring Club by the president of the club, and at the Capitol in Rome and at the Municipal Palace in Naples by the mayors of these cities. The Italian State Tourist Office is organising a second tour for foreign doctors next year, which will comprise some of the most important Italian climatic stations in addition to the spas.

BATH MUSTARD.

We have received from Messrs. Keen, Robinson and Co., Ltd., of Carrow Works, Norwich, a specimen of the new form of packing for this pleasant and useful addition to the bath. The mustard is now put up in a tin canister with a hinged lid, and the decorative design on the enamelled exterior makes the mustard container an elegant ornament for the bathroom. The price is 2*s.* 6*d.* per canister.

MIRROR-WRITING IN AN ADULT.

To the Editor of The Lancet.

Sir,—Referring to Dr. V. Pendred's letter on this subject in your issue of Sept. 27th (p. 684) I know a young lady of over 30 years who can mirror-write with either hand. She is naturally left-handed and writes more easily with that hand for her mirror-writing and more easily with her right for normal writing. She can write normally with her left hand also. She can also write simultaneously with the two hands. I enclose a copy of her handicraft. The four types of writing are remarkably similar.

I am, Sir, yours faithfully,

Oct. 18th, 1924. M.B.

MIRROR-WRITING AND LEFT-HANDEDNESS.

To the Editor of The Lancet.

Sir,—I should like to record another instance of the association between mirror-writing and left-handedness. It is the case of a little boy almost 8 years old. He has always been left-handed. As soon as he began to learn to write it was noticed that he was forming certain letters in the reverse direction—that is, from right to left (ᗺ. Ǝ), which is mirror-writing. It is not my object at the present time to offer any speculations upon the meaning of the association between mirror-writing and left-handedness. I merely wish to record one more case of the concurrence of these two peculiarities, the source of which must ultimately consist in some kind of atypical cerebration.

I am, Sir, yours faithfully,

Dane Hill, Sussex, Oct. 20th, 1924. D. Fraser Harris.

MANCHESTER LOCAL VOLUNTARY HOSPITALS COMMITTEE.

The report just issued emphasises the vast extent of the work done by these institutions and the need there is for greater public support. In the 17 local hospitals last year there were 194,093 new out-patients and 28,140 new in-patients. The total ordinary income was £236,220 and the expenditure £274,504, leaving a net deficit for the year of £38,278. The committee is of opinion that the voluntary system should be maintained and is worth saving, but it is felt that only the public can adequately answer the question by a generous response to the appeal for funds. The committee has come to the conclusion that a very large measure of support has failed to accrue by reason of the lack of centralised effort—there is not sufficient cohesion in the efforts at present being made. Centralised efforts have been successful in other towns to keep the local hospitals out of want, and success has crowned such efforts. The Voluntary Hospital Committee is therefore of the very strong opinion that such an object should be attempted in Manchester and Salford with a view to stimulating the existing agencies, and also to ensure that all avenues of support are fully explored.

A WHIFF OF OLD TIMES.

The contents of a commonplace book compiled for medical men may be useful for bedside reading. Dr. John Wishart has collected a hundred extracts [1] from literature prior to 1850 of mixed quality. Occasionally we come upon an extract which has a good flavour, such, for instance, as No. 51 from Coghan's "Haven of Health," 1636.

> "Now what Cheese is well made or otherwise may partly be perceived by this old Latine verse:—
>
> Non nix, non Argos, Mathusalem, Magdalanaene,
> Esau, non Lazarus, caseus ille bonus.
>
> That is to say, Cheese should not be white as snow is, nor full of eyes as Argos was, nor olde as Mathusalem was, nor full of whey or weeping as Marie Magdalen was, nor rough as Esau was, nor full of spots as Lazarus was. Banburie Cheese shall go for my money, for therein (if it be of the best sort) you shall neither taste the renet nor the salt, which be two special properties of good Cheese."

Another interesting extract is No. 10, being an account of a case of precocious puberty in a boy who died at the age of 7 "with all the signs of extreme old age and as if the months he had lived had been years." This is taken from the *Gentleman's Magazine* for December, 1734. The child must have been the original of Gilbert's "enfeebled old dotard of five."

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[1] A Whiff of Old Times; or 100 Extracts from Literature prior to 1850, for Medical Practitioners and Others. Collected by John Wishart, M.D. J. Wright and Sons. 3*s.*

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An Address

ON THE

GENERAL PRACTITIONER AS A RESEARCH WORKER.

Being the Presidential Address delivered to the Fife Medical Association on Sept. 26th, 1924,

BY J. H. P. PATON, M.B., CH.B. EDIN.,
SECRETARY, ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

[Dr. Paton, referring to the fact that at the present time research into the ætiology of diseases is almost wholly bacteriological, deprecated any impression that studies which could not be corroborated by laboratory investigations were the less trustworthy. The annual wastage from sickness and disability, which in England and Wales alone had been estimated at £150,000,000 per annum, was a problem left practically untouched by systematic research, and it was essentially one on which light could be thrown by the concerted experience of practitioners. Unfortunately it was rare to see articles by general practitioners recording and analysing their clinical experiences or dealing with the commonplaces of everyday practice. Such individual efforts as had been made were sporadic and not coördinated, and had not until recently been assisted financially. The Medical Research Council had, however, instituted grants for a few general practitioners engaged in special researches, and the B.M.A. had offered a prize for similar work. The difficulties in the way of the general practitioner were still enormous. The earning of his livelihood occupied almost every moment of his time, and any leisure that he had from his practice found him eager to get some hard-earned rest or recreation. Should he require laboratory assistance for experimental verification of his views, he had no convenient means at hand and no close association with the laboratory worker. Above all things he lacked the stimulus of working with colleagues for a common cause. The view he wished to put forward was simply that, if means were supplied by which systematic research into the problems of his practice could be continuously carried on by every general practitioner throughout the country, there was every reason to anticipate that benefits as great would accrue to general medicine as had been achieved by concerted research in the case of tropical diseases. Dr. Paton continued :—]

CLINICAL RESEARCH ESSENTIAL.

The research to be undertaken in this field is not mainly laboratory research. It has to do with observations at the bedside, not merely the recording of symptoms, but the study of them, so as to determine the laws that govern their production and the physiological processes that underlie them. Laboratory aid will be constantly required for experimental verification of the results, but the main function of the worker will be exercised at the bedside, and his results will be obtained by true clinical research. It is a common belief, expressed audibly and with great candour in some quarters, that the general practitioner is incapable of carrying out research. There is, at any rate, no systematic attempt made to teach the medical student the principles upon which it should be undertaken, and any scheme for utilising the mass of general practitioners for this object is regarded as impossible and impracticable. The foundation of the St. Andrews Institute for Clinical Research by Sir James Mackenzie was an expression of his conviction that such a view is untrue—that not only is the general practitioner capable of carrying on research, but that he is eager to do so if opportunity be given to him. Sir George Newman, in his est report, acknowledges that research is essential in view of the mass of sickness and disability. He estimates the loss of working time from this cause at 20½ million weeks every year. But as yet he does not appear to realise that this research can only be undertaken by the men in contact with the facts—by the general practitioners of the country—that time and means must be given to them for this purpose and their work coördinated.

THE WORK IN PROGRESS AT ST. ANDREWS.

We have in this Institute, in a small way, the organisation necessary for these objects. The generosity of a few private individuals who understand Sir James Mackenzie's point of view enabled us to establish it and provide for its administration. The Carnegie Trustees gave us a grant to pay the salaries of a chemist and a bacteriologist for a period of five years, now, alas, nearing an end, and the Medical Research Council aided us with a generous grant, the objects of which were to associate with us the professors of anatomy and physiology—to provide the salary of a whole-time physician engaged in the study of infants and children, and to meet some of the necessary expenses in regard to record-keeping and radiography; thus we are equipped not only with clinicians but with the experts necessary for carrying out special investigations.

We have now been at work for five years. Our clinical staff consists of some half dozen persons on part-time duty. I hope to be able to convince you that the experiment has justified itself—at any rate, that it has demonstrated that the idea of the general practitioner devoting some part of his time to research is not only feasible but is capable of producing results of practical value. We had no special qualifications for the task, except that we are general practitioners in daily touch with the problems requiring investigation. Indeed, there were no special qualifications to possess, because the field is a new one. We had to invent our own methods and train ourselves in their use, nor are either the methods or the training as yet by any means complete. As the laboratory worker requires strenuous training to master the technique of existing methods, and as he has constantly to be devising new methods to overcome fresh difficulties, so must the worker in clinical research train himself in known methods and continually devise better ones to supersede them. We have advanced some little way in both of these directions, in formulating a plan of campaign and in training ourselves in the best ways of carrying it out.

Case-taking: The Meaning of Symptoms.

Our first endeavours were devoted to devising methods of case-taking and of recording symptoms—methods suitable to that class of case in which we are interested—the minor ailments and disabilities in which structural change, or at any rate detectable structural change, is conspicuous by its absence. Our methods for recording symptoms were planned with the idea of bringing out those facts which would throw light upon the mechanism involved. These methods are constantly being revised and modified as our point of view changes and our experience widens. In particular we have endeavoured to record in special detail those circumstances of environment which may be supposed to disturb health and favour the onset of disease—habits, mode of life, both at home and at work, and the family history. But the essential feature of the records on which we lay stress is that they should be continuous, should include in chronological order every change as it appears from the first disturbance of health to the termination of a disease, for disease is a consecutive series of disturbances of health rather than a morbid state which can be comprehended from a description of the patient's symptoms at any one moment. Upon a knowledge of this procession of events (of the natural history of each disease) and of the processes which underlie each, depends scientific prognosis, and prognosis, as

Sir James Mackenzie has aptly expressed it, is the breath of life to medicine. We must be able to say in regard to obscure states of health: "The symptoms indicate the presence or absence of progressive disease," or "The appearance of a new symptom indicates a more serious state of affairs while the disappearance of another indicates betterment." While upon our decision as to whether a symptom is harmful or beneficial, is likely to disappear of itself or to progress to something worse, must depend the whole of intelligent treatment.

It is one of the fundamental axioms laid down by Sir James Mackenzie that the symptoms of use for diagnosis are not, as a rule, those of value for prognosis—an axiom based on the fact that structural changes are only of importance in so far as they disturb those functional activities which affect vital processes. Evidence of interference with function is to be sought for in symptoms rather than physical signs, and, as a rule, in symptoms referable to some other system or organ than the one structurally affected. That this is true in the case of the heart is obvious enough. Enlargement, dilatation, a valvular lesion, &c., give evidence of their danger to life in symptoms due to the deficiency of circulation in other organs—breathlessness, syncope, œdema, &c. What is true of the heart is true of other systems. Disease of the kidneys becomes dangerous to life when their functional efficiency as eliminating organs is impaired. And we know that the danger signals are to be looked for in changes in the heart and blood-vessels, in cerebral disturbances, such as headache or convulsions, and in breathlessness, œdema, &c. To estimate the prognosis, the probable course, the duration, the handicapping quality of a man's illness is not only a more difficult, but in reality a more important duty than to make an accurate diagnosis. But before the prognostic significance of a symptom can be scientifically understood it is essential that the processes underlying it should be known. When this information has been acquired about all symptoms, our understanding of a disease will have become rational and our prognosis will be based upon scientific data. Here lie the basis and fundamental task for clinical research—the acquisition of the knowledge of the mechanism by which symptoms are produced. This must be the aim of all our work, to put symptomatology upon a scientific basis.

The Reflex Hypothesis.

We believe that the first great step in this direction has been taken by our formulation of the reflex hypothesis—viz., that the majority of the symptoms of disease are due to disturbance of normal reflexes, and must be looked upon as disturbed physiological reactions of the body rather than as the properties of disease. No cell exhibits its specific activity except in response to stimuli which arise in the case of unicellular and low organisms in the environment and mobilise the cell by direct action. In the case of the higher organisms, where action at a distance is essential, these direct stimuli are converted by the activity of the receptor cell involved into impulses which are transmitted to the appropriate effector cell by a nervous connexion which we know as a reflex arc. The normal response of the body to the flood of stimuli from its environment is what we call health, and it is represented in consciousness by a sensation of well-being. If the impulses from any receptors be excessive, disordered, or diminished, then the response of the effectors becomes abnormal, the sensation of well-being is lost, and a symptom results. The task of the investigator of symptoms is thus made clear, to trace back the abnormal impulses from the effector to the disturbed receptor in which they originate. This broad conception, once it is realised, does more than this, for it furnishes a rational basis for the classification of symptoms, a basis determined by the nature of the processes involved into two great fundamental divisions—structural and reflex. The structural symptoms are what we know as physical signs. But it is with the reflex symptoms, the functional disturbances with which we as general practitioners have mainly to deal, that this hypothesis is concerned.

I need not tell you that, as general practitioners, our ignorance of reflex arcs and their connexions and habits was abysmal. But here the value of the coöperation of specialists became immediately apparent. Prof. P. T. Herring grasped the significance of the hypothesis, and in a series of addresses to us, afterwards published,[1] discussed and elucidated what was known in regard to reflex processes. In the course of these studies it became evident that there exists little accurate information about the nature and action of receptors. It is obvious, for example, that pain is commonly the result of the application of certain stimuli to the skin, but that on the application of these very stimuli to certain other tissues in the body no pain results, although these tissues can give rise to the most acute pain in certain circumstances. Pain in such cases, then, is not dependent upon the specific nature of the stimulus applied, but upon the nature and activity of the receptors involved. A committee, under the chairmanship of Prof. David Waterston, undertook a study of this question, and the results are being published from time to time.[2] In the course of their investigations there has emerged the fact that sensitive points in the skin vary in their activity. They are sensitive at one time and insensitive at another. Moreover, as one spot becomes insensitive another in the neighbourhood takes up the function. It has been shown by Krogh and others that there are similar variations in the activity of the capillaries of the skin of muscle and of the glomeruli of the kidney. This alternation of rest and activity we named fluctuation, and it became evident that some such property as this must be postulated for all cells—if the continuous action of organs is to be explained—and to account for such phenomena as the graded response of organs and the occurrence of reserve force.

Prof. Herring explained this view in a paper published in *Brain*,[3] which received but scant appreciation at the time. But it is interesting to note that in the Biological Section of the British Association this very property of living cells was placed in the forefront of the programme. I have mentioned these matters to show you the direction in which the theoretical side of the research is heading. But meanwhile much clinical information of practical importance is being accumulated and analysed.

Clinical Investigations.

The feeding of infants and children and the effects upon them of insanitary and disturbed surroundings are being specially studied. Dr. Andrew Rowand has many records in his possession demonstrating the disturbance (or conditioning) of normal reflex processes by environment. Certain ill-nourished infants, brought up in noisy and quarrelsome homes, fail to respond to the most careful regulation of their diet, but improvement at once follows if they are placed in proper and restful surroundings.

Many children suffer from anorexia during school term, though they eat well during the holidays. It needs little stretch of imagination to suppose that the continuous inhibition of gastro-intestinal reflexes which must be present in such cases may lead to a permanent disability and even to structural disease.

The relationships of nasal catarrh to adenoids, of sore throats to the enlargement of tonsils, of "growing pains" to rheumatism, are being illustrated by consecutive series of cases. Special attention is being given to the recurrent ailments of childhood—nasal and bronchial catarrhs, sore throats, cyclic vomiting, &c., and in all cases we attempt to make the record continuous, so that eventually we will have a clear idea of the effects upon the adult of these childish ailments.

Our records of adult patients consist either of cases of obscure ill-health, of cases exhibiting some special symptom in a marked form, or of cases of definite diagnosable disease. The obscure cases of ill-health may be temporary or may be prolonged, leading eventually to one of the diagnosable diseases. We attempt to record in each the points that appear likely to be of value in advancing the knowledge of diagnosis, prognosis, or the mechanism of symptoms, and these points are catalogued for each case so that they may be available for future reference. And here again we insist on continuity of the records so that the ultimate outcome may be apparent.

Attempts are made to unravel the mechanism of a particular symptom by the study of a series of cases exhibiting it. In connexion with the study of pain, for example, Dr. James Orr has collected a number of cases where the symptom appears to be due to deficiency in the supply of blood to muscle, not only cardiac muscle but skeletal muscle as well. He is also specially devoting time to cases bearing on the mechanism involved in the maintenance of blood pressure. All this is bound up, as you can see, with the subject of arteriosclerosis, its causes, onset, advance, and termination, and its effects on the function of the various organs which it attacks.

Exhaustion is being studied by Dr. L. H. Bryson. As a result of his work upon this subject the vital importance of capillary activity, already touched upon in the work on fluctuation, is becoming manifest. Capillaries can no longer be regarded as passive structures meekly accommodating such blood as is delivered to them by the activities of the general circulation. We have seen that they vary in their activity, both in the skin and in glomeruli. And it is becoming clear that so far from the circulation controlling them, it is to a large extent their servant, and it is to meet their demands that cardiac and vasomotor mechanism is mobilised. One of the factors which most potently disturbs the reflex mechanism, whatever it is, which regulates capillary activity, is the occurrence of toxæmia, and in a large series of cases of exhaustion the clinical evidence points both to disturbance of capillary circulation and to the presence of a toxin in the blood.

In addition to such works on the mechanism of symptoms we are endeavouring, as far as we can, to collect records which will demonstrate the truth or falsehood of many traditional beliefs which are widely held—for example, the belief that pleurisy is commonly tuberculous, that hæmoptysis is almost invariably so, that rheumatism is frequently the result of tonsillar disease and is relieved by the removal of these organs, that pain is the characteristic symptom of gastric and duodenal ulcer, and that these conditions can be accurately differentiated by the time of onset of the pain as is taught by Moynihan, that measles predisposes to tuberculous infection. Each of these is at present a pious belief adhered to with great tenacity in some quarters and scoffed at in others, each observer relying on the evidence of records which, though their authors are quite unaware of the fact, are selected records. The tuberculosis expert sees nothing but cases of phthisis. He sees no pleurisy except among those cases, a large proportion of whom give a history of previous pleurisy. What more natural than to conclude that pleurisy is invariably evidence of tuberculous infection? That conclusion may be right or it may be wrong, but the only arbiter must be the general practitioner who sees every case of pleurisy and who can follow each to its ultimate outcome.

CONCLUSION.

I have given you these details of our work here, not because we are particularly proud of them, not because they represent anything epoch-making, but because they show that there is this work to be done and that the general practitioner is capable of doing it, if time and means are provided. I have tried to show you that there is this great undiscovered country to be explored. But it is evident that it is not to be conquered by the efforts of a few pioneers, however eager they may be. A fully organised force must attack it, from a definite base, and after roads have been opened up permitting their entry. I have tried to show you that that force must consist of the general practitioners of this country, with the necessary ancillary services at their disposal to clear the path for them, physiologists, anatomists, bacteriologists, chemists, radiographers, &c., whose expert knowledge will be devoted to the quest in hand. Through the facilities which we possess at this Institute, under the guidance of a great and far-seeing leader, we have been enabled to establish such a base and to drive a little path from it into the wilderness. Sir James Mackenzie can, alas, no longer bear the strain, but his office has been filled by one of his most ardent admirers and disciples, Dr. Maitland Ramsay, under whose leadership we will continue the research.

Gentlemen, to each of you must have come, some time or another, the opportunity, and with it the desire, to investigate some problems in your daily practice, but facilities were wanting and the stimulus of comradeship and a common purpose. We have the facilities, in rudimentary but workable form, at this Institute, and my object to-day is to assure you that these are at your disposal, and to endeavour to enlist your help, your sympathy, your advice, and your criticism in this campaign. Some of you already work with us, to your own benefit, I hope, and certainly to our great encouragement and assistance, and I would appeal to this association for more recruits. The Institute, with its records, its library, its laboratories, its meetings, with the knowledge and advice of its specialist staff, and with the coöperation of its ordinary staff, is at your service for the investigation of the problems of your daily work. If you cannot afford the time to come to St. Andrews a letter to the secretary will place any information we may have at your disposal. And if you have records of interest compiled in your practice and can let us have them to add to ours, we will be greatly in your debt. I look forward to a time when all this will be accepted doctrine, when institutes such as ours will be set up in every district in the country, and when part of the duty of each general practitioner will be to take his share in clinical research. Meanwhile let us do what we can, let us lay the foundations for that movement, a movement which will, I believe, achieve for general medicine no meaner triumphs than those described by Sir David Bruce at Toronto as having been effected for the tropical diseases—a movement which will lead eventually, through the discovery of the laws governing its phenomena, to the elevation of medicine from an empiric art to its true place as an applied science.

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JOHANNESBURG GENERAL HOSPITAL, SOUTH AFRICA.

The honorary surgical registrar at the hospital reports that, during the year ended March last, 305 cases of cancer were treated at that hospital—an increase of 18 over the number during the previous year. This year the number of deaths from cancer was 74, against 81 during the previous year. But despite this decrease in mortality the number affected by the disease is still on the increase. During the same year, ended March last, as many as 557 persons were admitted to the hospital suffering from appendicitis. Only 30 of the number were natives, but of the 30, six died, whereas only 15 out of the 527 Europeans died. The registrar admits, of course, that the death-rate among natives suffering from appendicitis is very high—20 per cent., as compared with 2·8 per cent. for Europeans; but this is mainly due to the fact that natives have not yet learned to seek medical advice early.

THE

Mitchell Lecture

[ABRIDGED]

ON

TUBERCULOSIS OF THE LARYNX:

ITS SIGNIFICANCE TO THE PHYSICIAN.

Delivered before the Royal College of Physicians, London, on Nov. 6th, 1924,

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TUBERCULOSIS is the most important disease with which humanity has to cope. There is no other specific disease so common in the larynx. As the 106,990 cases of laryngeal tuberculosis in this country to-day must look principally to the physician for guidance and help, it is well worth while considering what assistance in his task can be offered by a laryngologist who, during a period of 10 years, has carefully watched the progress of 477 instances of laryngeal disease in 2541 patients with pulmonary tuberculosis.[1]

Proportion of Laryngeal Cases in Pulmonary Tuberculosis.

In the early years of this period 1 case out of every 4 had trouble in the larynx, while the average of the whole decade showed a proportion of 18·77 per cent. These patients were seen in a sanatorium and were, relatively, early cases, for the records of the post-mortem room show that the larynx is diseased in 48 to 83 per cent. of all fatal cases.

Suggestive Symptoms.—The two most suggestive symptoms are, first, slight but persistent huskiness, and secondly, discomfort referred to the throat or even pain in swallowing.

The latter is a symptom which is more frequent with advanced cases; therefore, for the all-important attainment of an early diagnosis, any hoarseness or any slight change in voice which does not clear up in two or three weeks should rouse suspicion and entail an expert examination of the larynx. But we must not forget that tubercle occasionally invades the larynx without causing the slightest alteration of voice or any other local symptom. Of the 477 cases of laryngeal tuberculosis I found no less than 57 (34 men and 23 women) who had no complaint of their throat and whose voices, both to their own ear and to mine, sounded quite clear and normal.

Proportion of Laryngeal Cases in Relation to Sex.—It used to be thought that the female sex was less subject than the male to contract pulmonary tuberculosis. But it has been shown that any difference between the sexes in this respect is not, as regards tubercle, due to any sexual predisposition but simply to the fact that, until recent times, women have led a more sheltered life and have been less exposed both to fatigue and to infection than men who work in office or factory. When both sexes are exposed to the same conditions, woman is just as subject to tuberculosis (in lungs or in larynx) as man; perhaps more so. The conclusion is that, amongst breadwinners, we must be prepared to find tubercle just as frequently in the larynx of the female as of the male. Another is that man's greater indulgence in alcohol and tobacco does not seem to render his larynx more vulnerable to tuberculosis.

Proportion of Laryngeal Cases in Relation to Stage of Pulmonary Disease.—It has long been established that the frequency with which the larynx is invaded increases with the progress of the pulmonary disease. This may occur even in 4·8 per cent. of cases in an early stage of the disease. These are cases with limited lesions and, at this period, might well be called "favourable." In severe cases the proportion mounts up to 18·3 per cent., while in the advanced type of disease which forms Group III. of the Turban-Gerhardt classification the proportion of laryngeal disease is almost double—viz., 31·5 per cent. Both women and men are increasingly liable to a laryngeal lesion with the progress of the pulmonary disease. Only 1 out of every 20 poitrinaires with an early lesion is liable to throat trouble; in more serious cases—i.e., those in Group II. of the Turban-Gerhardt classification—the proportion may be 1 in 5; and in the advanced cases of Group III. 1 patient in every 3 will have the disease in the larynx. This development, as will soon be shown, diminishes so markedly the prospect of recovery that it emphasises the great importance of diagnosing pulmonary tubercle in its early stage and persuading the patient to submit to the best treatment.

Region of Larynx Attacked.—It is quite certain that the favourite site is the neighbourhood of the posterior commissure—i.e., the interarytenoid area, the anterior surface of the arytenoid body and the vocal processes. The vocal cords come next in frequency, while the epiglottis and the region of the anterior commissure are attacked more rarely and are generally late extensions of the disease.

Prognostic Value of Tuberculosis of the Larynx in Regard to Mortality.

Of much importance to the general physician is an appreciation of what tuberculosis in the larynx counts for in regard to the mortality of pulmonary cases.

Of the 2541 patients with pulmonary tuberculosis who were discharged from the King Edward Sanatorium, Midhurst, between 1911 and 1921, the proportion of those alive between one and ten years later was, amongst those with a sound larynx, double that of those with tuberculous laryngitis. Of patients found to have tubercle in the larynx during these ten years, 2 out of every 3 were dead. Of those with a sound larynx it is the reverse—2 out of 3 were still alive. Of all the 477 cases of laryngeal tuberculosis which passed through my service at Midhurst between 1911 and 1921 no less than 70·5 per cent. are now dead. This darkening of the prognosis occurs in all stages of the disease.

Put in another way, a Group I. patient—i.e., a "slight" case—with a laryngeal lesion has a worse prospect than a Group II. case with a sound larynx. And a Group II. case—i.e., a "severe" case—with throat trouble has a gloomier expectation than if he had had a healthy larynx but lungs so invaded as to be classed in Group III.—i.e., an "advanced" case. Therefore laryngeal tuberculosis cannot be listed in any group which might be termed "slight" or "favourable." Its discovery at once labels a case as "severe," and authorises a physician to warn his client that treatment will necessarily, even in the most hopeful cases, be long and arduous. In only too many instances—in 70·5 per cent. of my fairly favourable selection—it will be his duty to advise the friends that the prospect of a recovery is so slight that it may be unjustifiable to submit the sufferer to any trying, dangerous, or expensive treatment.

Results of Treatment.

Let us now turn to the record of 119 cures. To appraise them at a fair value I may be permitted to say that such a large total of well-authenticated cases of healing in a larynx with tuberculosis has never before been published in this country. The satisfaction of quoting this record is enhanced when I recall that in 1880 Morell Mackenzie wrote: "The prognosis of laryngeal phthisis is always extremely unfavourable, and it is not certain that any cases ever recover." A complete repair of the larynx has been obtained in no less than 25 per cent. of patients with tuberculous laryngitis.

Cures: How Obtained.—I have no doubt that the principal factor in obtaining these arrests has been *sanatorium régime* and the prompt prescription of one or more of the three chief methods of local treatment—viz., whispers, silence, and the galvano-cautery. Fifty patients were cured, so far as local measures are concerned, by the simple reduction of voice use entailed by "whispers." Complete *silence* resulted in a cure in 23 instances, or in 34·3 per cent. of the cases in which it was ordered. Women give a slightly higher percentage of cures, both with whispers and silence, their greater patience and endurance—or recovery power?—being most noteworthy in the ordeal of the silence cure. The *galvano-cautery* yielded 46 cures.

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[1] StClair Thomson: Tuberculosis of the Larynx. Ten Years' Experience in a Sanatorium. Medical Research Council. H.M. Stationery Office. 1924. 2s. 6d.

Lasting Laryngeal Cures.—Of the 119 cases in which complete healing took place in the larynx, 69 are alive at periods varying from 2 to 10 years afterwards. Fifty are dead, and they have died, as a rule, with a still cicatrised larynx. Their deaths, usually, were due to the extent or virulence of their pulmonary disease.

Proportionate Progress of Pulmonary and Laryngeal Lesions.

The above references to the durability of healing in the larynx, while the disease in the lungs progresses, are sufficient to show that tubercle does not necessarily advance pari passu in both situations. This latter view is still maintained and, as it is not correct, it may occasionally mislead the physician. Improvement very commonly does proceed along parallel lines and, in the same way, a retrogression in one is often followed by progress of the disease in the other. Spontaneous cure has taken place in the larynx in many cases and has been maintained till the patient died of his pulmonary disease years afterwards. But the reverse has never occurred—i.e., I have never seen a larynx getting worse while the pulmonary disease has improved. It has occasionally, in such instances, been reported to me that the lung trouble was in statu quo; but, if the larynx did not mend, the pulmonary disease inevitably, within a definite period, took on activity.

This is useful knowledge for the physician. A larynx may improve or get well, while the lung disease remains quiescent or gets worse; but if the disease in the larynx advances the pulmonary disease cannot possibly become arrested and soon makes progress. This again shows the value to the physician, from the point of prognosis, of periodic examination of the larynx.

Tuberculosis in the larynx is always a serious complication of pulmonary disease. Physicians would be well advised, therefore, to assure themselves of its presence or absence in any case of tuberculosis. If present, it adds considerably to the seriousness of the prognosis and to the prolongation of the case and time required for successful treatment, even in cases otherwise early and promising. When the laryngeal lesion is extensive and active, the outlook is particularly serious. If the lesion is limited and becomes inactive, it may be arrested, although the prospect of life may not be great.

From prolonged observations on nearly 500 sanatorium patients, a cure of the laryngeal lesion may be secured in 1 out of every 4 patients. These were, comparatively speaking, early cases. But a much higher proportion of cures could certainly be obtained if more cases of pulmonary tuberculosis were diagnosed while they are still Group I. patients—i.e., with only 4·8 per cent. showing laryngeal lesions—instead of Group III.—i.e., with 31·5 per cent. with the larynx involved. More cures could be effected if every case of persistent huskiness or throat discomfort were earlier submitted to a skilled examination.

Principles of Success in Treatment.

It is manifest that a patient has a more sure hope of a quicker cure inside a well-conducted sanatorium than he can expect otherwise. The chief local requirement is voice rest, which can be so easily carried out in a sanatorium, but is elsewhere so difficult. Out of 119 cases which were cured, the healing was obtained without other local treatment than voice rest (whispers or silence) in no less than 73 instances. Local surgical methods of cure have all been abandoned by me as useless and frequently harmful.

The galvano-cautery is the best local treatment we have at present. In suitable cases it has replaced all other methods. It effected a cure in 46 out of 74 cases in which it was tried (=62·1 per cent.). Of these 46 cures, 29 are alive and well: 12 of them have now maintained their cure for 10 years.

Conclusions.

The majority of cases of tuberculosis of the larynx do not recover. It is necessary for the physician to recognise this; to try and determine which cases come within this category, and to act accordingly. But these 119 cures are witnesses of the more hopeful outlook we now have for a fair proportion of patients of whom an authority has said that, 45 years ago, "all were doomed to die: the appearance of the disease in the larynx was the warrant of death."[2] The pessimistic past has now a more optimistic outlook.

DIPHTHERIA PREVENTION.

THE SCHICK TEST AND ACTIVE IMMUNISATION IN VARIOUS SCHOOLS AND INSTITUTIONS IN THE CITY OF EDINBURGH.

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Introduction by

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At the recent Conference of the Royal Sanitary Institute, held at Liverpool, the fear was expressed, or implied, that the introduction of the Schick test and the consequent immunisation of susceptible subjects by means of toxin-antitoxin would not meet with much success in this country. The reason offered was that our people had not been educated to the need for the procedure. If we had adopted such a *non possumus* attitude in Edinburgh we should possibly have shared the pessimism expressed during the discussion of Dr. R. A. O'Brien's excellent contribution. It is a mistake to underrate the intelligence and interest of the citizens of our respective administrative areas. They are keenly alive to the importance of prevention of disease. It was with that knowledge in my mind that a campaign of diphtheria prevention was begun in the Leith district. The response to our appeal for coöperation was most encouraging. Dr. Benson, my assistant, at once set to work and the results detailed in his valuable contribution should act as an incentive to others to go and do likewise. It is not work that can be lightly undertaken. Careful readings must be made by those who have studied a considerable number of reactions. Objections will naturally be offered to the procedure. We have experienced them.

Every effort was made by the "antis" to cast doubt on the value and safety of the various applications that were required. The most was made of accidents that had occurred in America and that had been duly explained. The members of the school authority were circularised, the press was tried, and the members of the public health committee were tempted, but no difficulties confronted us as a result of the attempted obstruction. I feel confident the results will convince hesitating parents that the procedure is not only safe but also wise. During the ensuing winter months the campaign will be continued, and when more facts are available they will be published. The figures given by Dr. W. H. Park, of New York, together with Dr. A. Zingher's interesting data, were so convincing that no doubt was left in my mind as to the need for doing more to reduce the incidence of diphtheria than the swabbing of throats, quarantining of contacts, and the costly treatment in isolation hospitals. It was only after Dr. C. B. Ker, the medical superintendent of the Edinburgh City Fever Hospital, had fully satisfied himself as to the efficacy of the Schick test and the safety of immunisation by toxin-antitoxin that the resolve was made to undertake a comprehensive scheme in the Edinburgh area.

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[2] J. Nolan Mackenzie: Jour. of Laryn., 1916, xxxi., 411.

DIPHTHERIA PREVENTION. BY DR. BENSON.

Diphtheria in Edinburgh.

In Edinburgh during the past five years we have isolated 5154 cases of diphtheria, including 687 carriers. Out of this number, 330 deaths occurred. An analysis of the above figures shows that whilst only 24·3 per cent. of the five thousand odd cases occurred in children under 5 years of age, this age-period accounted for no less than 60 per cent. of the total deaths. On the other hand, 75 per cent. of the cases occurred in children of school age and in adults with, fortunately, a diminished mortality-rate.

The ideal in any scheme of immunisation against diphtheria, as pointed out by many workers, would be to protect the susceptible child towards the end of the first year or in the second year of its life. This ideal, however, presents considerable difficulties in attainment. Where three-quarters of the diphtheria patients are 5 years of age or over, we may be justified in assuming that by protecting the susceptible children of school age, particularly in the infant classes, the diphtheria incidence should be diminished by at least a half to three-quarters.

The Start of the Scheme.

In May and June of 1923 a sharp outbreak of diphtheria occurred in a school in the Leith area. The ordinary methods of control, vigorously applied, were not found effective, and as a last resort, the holiday season being almost due, the school was closed. With this epidemic fresh in the minds of the parents, a good opportunity presented itself for advocating the application of more modern methods—namely, the Schick test and subsequent active immunisation of susceptible children. Early in November, under the auspices of the Parents' Association, a meeting was convened at the school. This meeting, very largely attended, was addressed by Dr. Robertson, the medical officer of health, and by Dr. Ker, the superintendent of the City Hospital. The Schick test and methods of immunisation were explained. Experience in the application of these methods, both at home and amongst school-children in New York, was quoted.

The Edinburgh Education Authority was then approached, and in December gave the Public Health Authority permission to carry out diphtheria prevention work in their schools in the Leith area, with the proviso that they accepted entire responsibility and, secondly, did not call upon the school medical staff for assistance. Early in January of this year the work was commenced.

Procedure Adopted.

A personal visit was paid to the headmaster of each school, when the methods and aims of the work were explained, and an endeavour made to enlist his active sympathy and support. For his information a memorandum on the Schick test and active immunisation, specially drawn up by Dr. Ker,[1] was presented to him.

As it was anticipated that the advice of the family doctor would influence many parents to grant or withhold consent, a copy of this memorandum was issued to each general practitioner in Edinburgh previous to the start of the campaign. Later experience showed the great advantage, both in obtaining a larger percentage of consents and in expediting the work generally, of obtaining the active interest and support of the headmaster and teaching staff. Zingher,[2] in his work in New York schools, emphasised the importance of obtaining the coöperation of the teaching staff.

The number of children attending the school up to the tenth birthday having been obtained, the requisite number of information leaflets and consent slips was supplied for distribution.

Information Leaflet.

Diphtheria is a dangerous infectious disease which mainly attacks children.

In Edinburgh we have more or less 1000 cases of diphtheria each year, and out of these some 70 to 80 children die.

There is now a safe and reliable means of preventing diphtheria.

By the use of a simple test (Schick test) it is possible to find out those children who are liable to take the disease and those who are not.

Those children who, by this test, are found to be susceptible to diphtheria can be protected against the disease.

Protection is obtained by a course of three small injections at weekly intervals.

Many thousands of children have been tested and protected in this and other countries, *and the methods employed have been proved to be effective and harmless.*

Facilities for testing and protection will be made available at every school as the need arises.

Children of under school age should be sent to the school with an older brother or sister in order that the various procedures may be carried out.

I strongly advise you, in the interests of your children, to have them protected against diphtheria. Once protected, it is believed they will remain so for life.

Consent Slip.

I hereby give the Medical Officer of Health or his representatives permission to carry out all the following procedures should he consider them necessary for the protection of my children against diphtheria—namely :—

1. The Schick test.
2. A course of three protective injections.
3. A final Schick test and protective injection after an interval of six months.

Date.................. Signed..........................

A leaflet and consent slip was taken home by each child under 10 years of age with the request that the latter should be signed and returned by a certain day, two or three days being judged ample. A list of children for whom consent had been obtained was then very kindly made out by the school staff giving the name, age, address, and previous diphtheria history of each child. The necessity of adhering to the order of the list in marshalling the children before us on our various visits was emphasised, as thereby much confusion and delay was avoided. On completion of the list it was forwarded to the Public Health Department where a duplicate copy was made in a book which accompanied us on all our visits, and in which all observations were entered. Mutually convenient dates and hours were then arranged for the four to six necessary visits. Facilities were given to the parents to be present on the first occasion, at the test, when the technique was demonstrated and questions invited. At succeeding visits only those parents who had brought under-school-age children to the school for treatment were permitted to be present while the children were being injected.

On the day of the test the children were marshalled by the school staff in one or two queues varying with the number of operators present. The responsibility for the correct children being tested rested with the school staff. A large room with a good light and two doors was usually obtained. It is of great advantage to avoid confusion, to have a separate entrance and exit. Two or more teachers were usually placed at our disposal. Whilst one very efficiently cleansed the arms with spirit, the other stood by the operator checking off each child as it was dealt with, whilst a third, if available, saw that the children who had undergone treatment returned to their respective class-rooms. This procedure was adhered to on successive visits. To complete the work four or five visits were required extending over a period of from 22 to 29 days.

At the first few schools six visits were paid in all but latterly we have cut this down to five, or even four, with equally satisfactory results by reading or the eighth day and giving the first immunising dose at the same visit. Our present time-table is as follows:—

Day.		
1st	..	Schick test.
8th	..	First reading and first toxin-antitoxin injection.
15th	..	Second reading where necessary and second toxin-antitoxin injection.
22nd	..	Third toxin-antitoxin injection.
29th	..	Final visit where necessary to complete absentees.

This time-table has the added advantage of making all visits on the same day each week, thus tending to lessen mistakes as to dates. It was found that where the organisation was very efficient, and an uninterrupted flow of children brought to the skilled operator, that the Schick test (without control) could be applied single-handed to from 100 to 120 or even more children within the hour. As an average, we might count on 100 tests per hour per operator. The immunising injections can be performed with at least equal rapidity. At any one of the various schools two skilled operators were found sufficient to deal with the number of children involved. The time actually spent at the school at any one visit rarely exceeded two hours.

Particulars of readings and dosage of toxin antitoxin mixture were entered in the day-book whilst actually examining the children. At the Public Health Department these particulars were copied on to record cards which were indexed. We are indebted to Dr. Ker for the type of record card which has been found very satisfactory.

Record Card: Headings.

NAME...................... AGE.......... SEX..........

ADDRESS..

Protected—Date	SCHICK TESTS.		
Dosage	Date.	Result.	Pseudo.
Subsequent History :			

All notified cases of infectious disease for removal to the City Hospital are daily investigated in this card index and, if any should have undergone the Schick test, full particulars are forwarded to the hospital. The advantage of possessing this information in regard to patients admitted to an infectious diseases hospital is obvious. Should diphtheria occur in a person who has been tested, the fact is noted on the record card, under the heading "subsequent history."

Technique Employed.

In many of the children under 5 years of age the Schick test was dispensed with, and the child immunised straight away. In children between 5 and 10 years of age the Schick test was always applied, but without a control. We were led to dispense with the control test, available staff skilled in the technique being very limited, by the observation of Ker and McGarrity,[3] who found that among hospital cases only 3·1 per cent. of Edinburgh children between 5 and 10 years of age, mostly scarlet fever patients, gave a pseudo-reaction. There is thus a possibility that three children in every 100 have been wrongly classified as susceptible, and have thus undergone unnecessary immunisation. Nor, unfortunately, was the control test applied to those school-children from 10 to 12 years of age who for one reason or another crept into the scheme. In older children and adults, dealt with at various institutions, the test was invariably controlled.

The uncontrolled testing of children between 5 and 10 years of age has worked on the whole quite satisfactorily, but leaves the operator in a quandary on certain occasions as to whether to class a child as susceptible or otherwise, with the result that the child must be given the benefit of the doubt. This may account for the somewhat higher percentage of susceptible children we have found in this age-period—namely, 64·2, as compared with the figure of Ker and McGarrity—viz., 58·4. In carrying out the re-tests the control test is essential.

All the Schick test toxin and toxin-antitoxin mixture used was prepared by Dr. O'Brien, and supplied from the laboratories of Messrs. Burroughs and Wellcome. The dose given of the former was in all cases 1/50 of the minimum lethal dose for the guinea-pig injected in 0·2 c.cm. of normal saline; the dose of the latter was 1 c.cm., and the full immunising course consisted of three such doses at weekly intervals.

The test was performed on the left forearm. A 1 c.cm. all-glass syringe graduated in 1/20th c.cm. fitted with a No. 214 rustless needle gave a very accurate technique. The toxin-antitoxin mixture was injected subcutaneously about two inches above and behind the elbow. The first and third immunising doses were given into the left arm, and the second into the right. A 5 c.cm. record syringe, fitted with a fairly large bore needle, was found very expeditious and convenient to handle. The skin was cleansed with spirit. The needles were dipped in alcohol between each injection. In some 4000 tests and 6080 injections of toxin-antitoxin mixture no case of sepsis arose.

Number of Consents Obtained.

In Table I. the 16 schools are arranged according to the social status of the scholars, two fee-paying schools heading the list, and two schools attended by the poorest class children occupying a position at the bottom of the list. The intervening schools are attended by a mixed class of children. I am indebted to Dr. Robertson, for many years medical officer of health of Leith, for the above classification of schools according to social scale. The list does not profess to indicate fine differences between school and school.

TABLE I.—*Consents Obtained at 16 Board Schools.*

School.	No. of children under 10—		School.	No. of children under 10—	
	At school.	Consent obtained.		At school.	Consent obtained.
		%			%
A	57	49 (86·0)	I	259	147 (56·7)
B	473	266 (56·2)	J	386	110 (28·5)
C	182	121 (66·5)	K	456	227 (49·8)
D	457	348 (76·1)	L	311	34 (10·9)
E	484	217 (44·8)	M	340	130 (38·2)
F	465	190 (40·9)	N	500	178 (35·6)
G	537	244 (45·4)	O	602	168 (27·9)
H	584	246 (42·1)	P	480	107 (22·3)
Total ..	..	..	.. .. ..	6573	2782 (42·3)

Table I. lends support to the view that the more enlightened the population we have to deal with, the greater response are we likely to get to new preventive methods. The very low figure of 10·9 per cent. for one school can be explained by the fact that this school is attended by children from an old fishing community very conservative in their ideas and very suspicious of new methods. In the case of School D the percentage (76·1) is the result of two opportunities having been given to the parents. At the first canvass, in January, consent was obtained for almost 50 per cent. of children attending school under 10 years of age. On a second opportunity being given four months later, permission was obtained for no less than 53 per cent. of the children under 10 years of age whose parents had hung back on the first occasion. This result is very encouraging, and suggests that when the methods employed are more widely known, and confidence established in their freedom from unpleasant reactions, more and more parents will avail themselves of the opportunity presented to them.

The fact that consent was obtained for 42 per cent. of 6573 board school children between 5 and 10 years of age should help to remove, to some extent, that feeling of doubt regarding the application of new preventive measures to the general population.

Children Under 5 Years and Over 10.

An endeavour was made to get at the pre-school age by inserting a clause in the information leaflet stating that younger children should be brought along to the school for treatment. It is a matter of regret that the parents of only 141 children under 5 years of age availed themselves of this opportunity. Other methods of approaching the pre-school population must therefore be devised.

Although we endeavoured to confine the preventive work to children under 10 years of age, in a considerable number of cases parents were so desirous of having older children tested, and immunised if necessary, that no less than 176 children between 10 and 12 years of age have crept into our records. It is among this group that the Schick test without a control gave rise to real difficulty in reading.

Consents, Tests, and Readings.

It is one thing to obtain consent, but quite another matter to carry through to a satisfactory conclusion at a school the various procedures necessary for the immunisation of the child. Out of 3099 children from 1 to 12 years of age for whom consent was obtained at the 16 schools, 2992 were actually tested, and of these, satisfactory readings were obtained for 2925, or 94·4 per cent. of the original consents. A wastage of 5·6 per cent. occurred, which was accounted for mainly by absenteeism.

Schick Test Results.

In all, 3457 adults and children have been tested since November, 1923, of whom 2925 have been school-children, and 532 inmates of various institutions, excluding the City Hospital. Table II. gives the results of all the 3457 tests made.

TABLE II.—*Total Cases in Schools and Institutions (November, 1923, to June, 1924).*

Age-period in years.	Total.	Negative.	Positive.	Per cent. positive results obtained at City Hospital.*
			%	%
1– 5	236	54	182 (77·1)	76·0
5–10	2718	973	1745 (64·2)	58·4
10–15	384	182	202 (52·6)	52·0
15–20	44	21	23 (52·3)	53·5
20–25	33	16	17 (51·5)	—
25–30	20	13	7 (35·0)	—
30–35	22	14	8 (36·4)	—
Totals ..	3457	1273	2184 (63·2)	—

* For comparison the results of 1540 tests performed on patients at the City Hospital from 1 to 20 years of age by Ker and McGarrity have been put in this column.

There is a very close approximation of our results to those obtained at the City Hospital. The difference of 5 per cent. in the 5–10 age-period may be accounted for by the fact that our readings, owing to the lack of a control test, were always liable to err on the positive side, and hence our susceptibles are probably too high by some 3 to 4 per cent. The diminution of susceptibility as age advances is evident in the table.

Table III. gives the Schick results obtained at 16 schools, and indicates how susceptibility varies not only with age but with social conditions.

The schools are arranged as before in descending social scale. The numbers in brackets recorded in the 1–5 and 10–12 year columns indicate the number of children on which the percentage figure is based.

The same social variation among New York school-children has been demonstrated by Zingher,[4] the generally accepted explanation being that children of the poorer classes, where overcrowding is a marked feature, are much more exposed than the children of better-class households to small and repeated doses of the diphtheria virus, insufficient to give rise to the actual disease, yet effective in producing an active immunity.

TABLE III.—*Schick Test Results in 16 Schools.*

School.	Total number of children tested.	Per cent. of susceptible children at different age-periods in years.		
		1–5	5–10	10–12
A	43	—	88·8	—
B	298	95·6 (23)	80·3	63·7 (11)
C	118	100·0 (9)	82·6	—
D	419	85·7 (7)	75·3	67·5 (80)
E	206	—	72·8	—
F	203	—	74·8	—
G	247	73·7 (19)	64·3	—
H	246	—	58·2	—
I	145	—	58·1	—
J	101	—	52·1	—
K	248	84·6 (26)	58·3	50·0 (6)
L	41	—	54·5	—
M	130	—	54·4	—
N	173	—	45·7	—
O	203	—	48·1	—
P	104	—	34·0	33·3 (9)

The following results obtained at a children's hospital are also suggestive of the part played by the social factor in the development of immunity. Forty-three of the nursing staff between 18 and 25 years of age were tested, and 58·1 per cent. were found susceptible, whilst in 11 maids of the same age-period the susceptibility was only 45 per cent. I might mention here that the entire medical and nursing staff of this hospital, 57 in number, showed a percentage susceptibility of 49·1. This figure approximates very closely to the 50·5 per cent. of susceptibles found by O'Brien[5] and his fellow-workers in the nursing staff of a London teaching hospital.

Familial Incidence.

Zingher[6] noted the marked tendency for all children of the same family to give a similar Schick reaction, either all positive or all negative. When the reactions vary, the younger children, as a rule, give a positive reaction and the older a negative. The results set out in Table IV., obtained during the investigation of 600 families, each of two to five members, lend strong support to the above view.

TABLE IV.—*Familial Incidence of Susceptibility to Diphtheria as Indicated by the Results of the Schick Test.*

Total number of families tested	600
Number of families whose members all gave a negative Schick test	143
Number of families whose members all gave a positive Schick test	280
Number of families in which the younger members gave a positive Schick test and the older members a negative Schick test	126
Number of families in which the younger members gave a negative Schick test and the older members a positive Schick test	51
Percentage of families whose members are either (1) all immune to diphtheria, (2) all susceptible to diphtheria, or (3) in which the younger members are susceptible and the older members immune to diphtheria	91·5
Percentage of families in which the younger members are immune and the older members susceptible to diphtheria	8·5

Does One Attack of Diphtheria Confer a Lasting Immunity?

Of 245 children who gave a history of having suffered previously from diphtheria, 118, or 48 per cent., were Schick-positive. This percentage approximates very closely to the 46·4 per cent. of susceptibles found by Ker and McGarrity in 157 patients with previous diphtheria history.

Active Immunisation with Toxin-Antitoxin Mixture.

The mixture used, the dosage, and the method of administration, have already been described. In

Table V. is shown the number of susceptible children at different age-periods at the 16 schools who were either completely or partially immunised, or escaped immunisation entirely.

TABLE V.—*Immunisations at 16 Board Schools.*

Age-period in years.	Number of susceptible children—			
	Completely or partially immunised.			Who escaped immunisation.
	3 c.cm.	2 c.cm.	1 c.cm.	
1– 5	90	3	10	7
5–10	1545	52	64	37
10–12	92	3	5	—
Totals ..	1727 (90·5 %)	58 (3·1 %)	79 (4·1 %)	44 (2·3 %)

It is very reassuring to note that no less than 92·6 per cent. of those children who received one injection completed their full course. One may assume from such a result that reactions following the toxin-antitoxin injections could not have been numerous, or, if so, were certainly not severe in type. Of the 181 partially or non-immunised children, 94 are accounted for by absence, 5 had left the school, 4 were too nervous, and 78 were due to withdrawal of consent by the parents. Of these 78 children, in 12, for no obvious reason, consent was withdrawn previous to immunisation. Forty-one withdrawals of consent occurred after the first injection of toxin-antitoxin, and may be ascribed to varying degrees of reaction. In the remaining 25 children, consent was withdrawn after two injections had been given. Excluding the 12 children who were withdrawn previous to immunisation, we find that the parents of 66 children refused to permit completion of immunisation, a percentage of 3·4.

In many cases I was able to satisfy myself that the reactions, the occurrence of which had been given as a reason for refusal to permit further injections, were very trifling.

TABLE VI.—*Total Number of Children and Adults Immunised in Schools and Institutions (November, 1923, to July, 1924).*

—	Toxin-antitoxin mixture—			Totals.
	3 c.cm.	2 c.cm.	1 c.cm.	
Schools	1727	58	79	1864
Institutions, &c. ..	230	4	6	240
Totals	1957 (93 %)	62 (3 %)	85 (4 %)	2104

Reactions following Toxin-antitoxin Injections.

In the 160 children under 5 years of age who have undergone immunisation the almost entire absence of reactions was a very satisfactory feature.

In carrying out immunisations at the schools it was not possible to observe the children daily, hence a correct estimate of the number of children in whom definite reactions did occur was very difficult to arrive at. We can, however, definitely state that no serious or permanent ill-effects were produced in any one of the 1864 school-children who were injected with toxin-antitoxin mixture. The same statement holds good for the 240 immunisations performed in various institutions.

Complaints from the parents of 28 children reached our ears. This number amounts to 1·4 per cent. of the total number of children injected. We were able to satisfy ourselves in many of the cases that the general reaction had been trifling, or even absent, and that the rather fearsome redness at the site of the injection had naturally rather worried the anxious parent. In other cases, however, a more or less marked general reaction, necessitating confinement to bed, had occurred. These unpleasant effects were confined mostly to the group of children between 10 and 12 years of age.

In one institution the cases were observed daily after the first toxin-antitoxin injection, and clinical symptoms noted. The particulars are given in Table VII.

TABLE VII.—*Reactions following First Injection of 1 c.cm. of Toxin-antitoxin Mixture.*

Age-period in years.	Number of children who received the injection.	Reactions: Headache, anorexia, and local—	
		With temperature.	Without temperature.
5–10	41	1 (100° F.)	3 (symptoms very slight)
10–15	51	9 (99·4° to 101° F.)	4 (moderate or slight)

In the 5–10 age-group the temperature persisted less than 24 hours in the one case. In the 10–15 age-group the temperature remained elevated less than 24 hours in two cases, 24–36 hours in one case, and 36–48 hours in six cases. All the children had apparently perfectly recovered by the fourth day. The reactions following the second and third doses were not so marked, and the children were able to follow their usual routine.

Effects on School Attendance.

The Schick test, as was to be expected, gave rise to no interference with school attendance. The amount of school time lost, ascribed to the effects of the injections of toxin-antitoxin mixture, varied to an extraordinary degree in different schools—the better class schools tending to have fewer absentees than the poorer class schools.

In some seven schools an endeavour was made to arrive at the number of children whose absence was due to the effects of the injections.

In school C, out of 104 children immunised, there were two absentees who were each away three days. There was good evidence to show that both these children of 9 years of age had suffered from genuine reactions, and had each been kept in bed two days. This gives an absentee percentage of under 2. At school K there were 3 per cent. of absentees following the first toxin-antitoxin injection.

In school O a very different state of affairs occurred. Out of 95 children immunised, no fewer than 52 absented themselves for varying periods of time after the injections—a percentage of 54·7. The total school time lost was 72 days.

In schools A and B absentees were very few in number, whilst in schools I and J 27 and 16 per cent. of the immunised children were absent after one or other of the injections.

It is difficult to believe that such a variation in the percentage of true reactions can occur in children of the same age-period.

Development of Immunity.

In routine school work re-tests are not being performed until an interval of at least six months has elapsed since the completion of immunisation. As it will be several months yet before re-tests can be carried out on the majority of the 2000 children immunised during the first half of this year, we shall have to deal with this aspect of the subject more fully at some later date.

Previous to the re-test being applied, it has been thought advisable to issue the following notice to the parents.

Re-test Notice.

> By the application of the Schick test your child was found to be susceptible to DIPHTHERIA and duly received three protective injections.
>
> A sufficient interval of time has now elapsed to allow for the development of protection.
>
> Before we can definitely state the child is protected against DIPHTHERIA a final Schick test must be applied. This final test is now to be carried out.

In one institution we had an opportunity of carrying out re-tests at varying intervals of time on a group of 91 immunised children. Table VIII. shows the rate of development of immunity.

Out of 92 susceptible children from 5 to 15 years of age 84, or 91·3 per cent., developed immunity to diphtheria within five to six months of completion of immunisation. In the remaining eight children the Schick reaction was less marked than that given by the original test, being classified as faint positive in six and moderate positive in two. A fourth injection of 1 c.cm. of toxin-antitoxin mixture was administered to seven of these children, and on a re-test being applied some two months later it was found that all gave a negative Schick response.

TABLE VIII.—*Development of Immunity.*

Age-period in years.	Number of Schick positive children injected with 3 c.cm. toxin-antitoxin mixture.	Number who became Schick negative within—		
5–10	41	10 wks. : 26	18 wks. : 34	26 wks. : 38
10–15	51	8 wks. : 30	15 wks. : 43	21 wks. : 46

In another group of 29 immunised children and adults (2) only 13, or 44·8 per cent., had developed immunity within a period of five months. The original Schicks in this particular institution might be described as brilliant, and the diminished reactions in the remaining 14 positives (two had left) was a noticeable feature—five being described as faint and nine as moderate positive.

In a group of 155 school-children from 5–11 years of age who completed their full immunisation course six and a half months ago, a recent re-test showed that 66, or 42·6 per cent., had developed immunity. Of the 89 who still showed evidence of susceptibility, 53, or 34·2 per cent., gave a faint Schick reaction and might be termed border-line cases, whilst 36, or 23·2 per cent., were still definitely susceptible.

At first sight the low immunity percentages of 42 and 44 are very disappointing, and not what one has been led to expect from the experiences of other workers. It is highly probable, however, that it is only a matter of time before the border-line cases, some 34 per cent. in the latter group, also show a negative Schick reaction, and were one to re-test again six months or one year later, a much more satisfactory immunity result would be obtained.

Since writing these lines Dr. Ker has very kindly drawn my attention to a recent publication of Zingher and Park,[7] in which they emphasise the great importance of the time factor in the Schick re-test. They found that more than half of those who were still susceptible at the end of three to six months gave a negative Schick reaction one year later without having received any further injection of toxin-antitoxin.

The variation in the immunity results indicates that either the toxin-antitoxin mixture used varied in potency, or that in individual groups of children there are marked differences in the power of response to the toxin-antitoxin stimulus. Whatever the part played by the former, our results seem to indicate that the latter factor is certainly an important one. It is reasonable to suppose that the tuning up of the tissues to respond to the toxin-antitoxin stimulus is produced by exposure of the child to repeated subinfective doses of the diphtheria virus. Should this be the case we would expect to find a better immunity response to toxin-antitoxin injections in a group of children who show a low susceptibility rate than in a group with a high susceptibility rate.

In the institution where the immunity rate of 91 per cent. was obtained the original percentage of Schick positive reactors was 49, whilst in the two groups of children with immunity rates of 43 and 45 per cent. the Schick positive reactors amounted to 73 and 66 per cent. respectively. Our results to date indicate that in a relatively susceptible population with comparatively low diphtheria incidence, such as we have to deal with in Edinburgh, the primary course of three toxin-antitoxin injections will not suffice to produce immunity within six months in a large number of cases, and at least one additional injection will have to be given. The original consent slip has now been altered to provide for this contingency.

Issue of Certificates.

One or other of the certificates here shown, modelled on those at present being used by the New York Department of Health, are issued to parents as the occasion requires: (1) Diphtheria Protection Certificate (A and B); (2) Diphtheria Vaccination Certificate.

Diphtheria Protection Certificates. (A).

This is to certify that......................Age......
residing at......................is naturally protected against DIPHTHERIA as shown by the Schick test performed on......................192....at..........
Issued by..............................
Date..............................

(B).

This is to certify that......................Age......
residing at......................has received protective injection against DIPHTHERIA and is protected against the disease, as shown by the Schick test performed on ....192......at..........................
Issued by..............................
Date..............................

Diphtheria Vaccination Certificate.

This is to certify that......................Age......
residing at..................................has received three protective injections of toxin-antitoxin against DIPHTHERIA. The final DIPHTHERIA PROTECTION CERTIFICATE will be issued after an interval of six months has elapsed, *providing* the child undergoes a Schick test and shows a negative Schick reaction.
Issued by..............................
Medical Officer
Date..............................

Summary.

When an opportunity was presented to the general population of having their children protected against diphtheria, the parents of 42 per cent. of children under 10 years of age attending 16 board schools availed themselves of it. A better response was obtained from the more educated classes of the community. An effort to reach the 1–5 age-period through the various schools has not met with the success one would have desired.

From an analysis of 5000 tests one may expect to find that on an average some 75 to 80 per cent., 60 to 65 per cent., and 50 to 55 per cent. of lower middle and poor class Edinburgh children at the age-periods 1–5, 5–10, and 10–15 years are susceptible to diphtheria. Dispensing with the control test in children under 10 years of age has not given rise to any serious difficulties, and where skilled staff is limited, and numbers to be dealt with very great, is a measure well worth serious consideration. In the re-test, following active immunisation, the control test is indispensable. Susceptibility to diphtheria tends to decrease (1) as age increases, and (2) as we descend in the social scale. In 91·5 per cent. of 600 families all the members either gave the same Schick reaction, negative or positive, or if they varied the younger members gave a positive and the older members a negative reaction.

Almost one-half of those who have had an attack of diphtheria remain susceptible to the disease as evidenced by the positive Schick reaction. Nine-tenths of some 2000 susceptible children completed the full immunising course of three toxin-antitoxin injections. No alarming or permanent ill-effects were produced in any one of the 2104 children and adults immunised. Absenteeism ascribed to the effects of toxin-antitoxin administration varied to a remarkable degree at different schools, being more in evidence in the poorer class schools than in the better class schools. In different groups of originally Schick positive children, from 41 to 91 per cent. developed immunity within five to seven months of completion of a course of three weekly injections of 1 c.cm. toxin-antitoxin mixture.

There are indications that a better immunity result following toxin-antitoxin administration is likely to be obtained in a group of children where positive Schick reactors are few in number and the reactions faint or moderate in intensity, than in a group where positive Schick reactors are numerous and reactions brilliant. In the latter group either a longer period of time than six months will have to be allowed for the development of immunity, or else the primary immunising course will have to be supplemented in a very considerable number of cases by one or more injections of toxin-antitoxin mixture some months later.

We beg to thank Dr. C. B. Ker, the superintendent of the City Hospital, not only for much helpful advice, but also for very kindly placing at our disposal on various occasions members of his resident medical staff. Among the latter, all of whom did excellent work, it may be invidious to mention any one in particular, but to Dr. McGarrity, the senior resident medical officer, we are particularly indebted.

Dr. T. Y. Finlay, child welfare medical officer, very kindly coöperated in the work carried out at the Children's Hospital and various child welfare centres.

Lastly, we desire specially to acknowledge the courtesy and invaluable assistance afforded us by the teaching staffs of the various schools.

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THE SENSORY NERVE FIBRES OF THE HEART AND AORTA

IN RELATION TO SURGICAL OPERATIONS FOR THE RELIEF OF ANGINA PECTORIS.

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Sir James Mackenzie, in an article in THE LANCET [1] a short time ago, has criticised from a clinical point of view the surgical operations which have been performed in cases of angina pectoris. All operations in which nerves are cut are a balance of loss and gain, and as long as there is a chance of relieving the pain of angina pectoris, operations will no doubt be performed. What I wish to point out is that the operations as they have been conducted are open to grave criticism from the point of view of physiological experiment.

The aim of the operations has been to cut those nerves of the heart, or of the heart and aorta, which are capable of giving rise to pain, though occasional reference has been made to the effect of other kinds of afferent fibres. The presence of most classes of afferent fibres in a nerve can be determined by stimulation of its central end. Nerve fibres causing pain cause reflex movement, pressor and depressor vascular fibres are shown either by their effect on general blood pressure or by their local action; the presence of nerve fibres having a special action on inhibition or acceleration of the heart, respiration, contraction, or inhibition of particular organs, are disclosed. Conversely, the absence of any particular reaction shows the absence of a particular kind of nerve fibre. In the intact animal the reactions are complicated by pain, but pain can be abolished by decerebration or by anæsthetics, and the essential nature of the afferent fibres can be more clearly distinguished; pain fibres still cause reflex movement, the depressor nerve causes a fall of blood pressure, and so on.

The theory on which most of the operations have been made is that a considerable number of the sensory fibres of the heart pass to the central nervous system by way of the cervical sympathetic and of the vertebral nerve. This theory is based on the experimental results obtained by François-Franck[2] in 1889. He stated that stimulation of the head end of the cervical sympathetic and of the cervical end of the vertebral nerve caused marked reflex movements. In the course of investigations on the sympathetic system, I made observations on the afferent nerves of the thoracic viscera which, I think, showed that the reflex effect obtained by François-Franck from the cervical sympathetic was caused by attached vagus fibres, and that the reflex effect obtained by him from the vertebral nerve was caused by a small spinal nerve branch accompanying it near the ganglion stellatum. My experiments were made on cats anæsthetised with chloroform and ether. As nearly all were published a good many years ago,[3] I may give a brief account of them here.

In the cat, the chief sympathetic nerves of the heart (and other thoracic viscera) proceed from the ganglion stellatum (the combined inferior cervical and first thoracic ganglia of man). Stimulation of the peripheral end of this nerve causes marked quickening of the heart beat, and in consequence it is called the accelerator nerve. We may call it the major accelerator nerve, since some accelerator nerve fibres pass to the heart by way of the annulus of Vieussens and the inferior cervical ganglion (middle cervical ganglion of man). These nerve fibres may run in more than one nerve strand; we may call the strand or strands the minor accelerator nerve. It contains also the sympathetic fibres (if any) proceeding from the cervical sympathetic to the heart. In different mammals there is considerable difference in the position of the ganglia, in the place of separation of the nerve branches, and in their number and plexus formation, but no essential difference has been found, and there is no reason to doubt that the arrangement in man is essentially the same as in the cat.

Most of my experiments on the major accelerator nerve were made in the following way. The nerve and the sympathetic trunk below the fifth thoracic white ramus were cut. The white rami were cut successively and the central end of the accelerator nerve stimulated after each section. As long as any one of the first five white rami were intact the stimulation caused reflex movement; when all were cut, no reflex movement was obtained. It was clear, then, that sensory fibres of the major accelerator nerve entered the cord by the first five white rami, and that none, or at any rate no appreciable number, took the course of the vertebral nerve and the lower cervical spinal nerves. A few experiments were made on the lower thoracic white rami, and I concluded that the sixth white ramus also contained some of the sensory fibres, but the exact lower limit of origin I left for a future investigation, and this has not been carried out.

The minor accelerator nerve usually contains some fibres from the vagus, and the simplest way of determining its connexion with the thoracic and lower cervical spinal cord is to stimulate the central end of the annulus of Vieussens, which is its only connexion with this region. My experiments on this nerve were few, but in these it was clear that no sensory fibres passed from it to the vertebral nerve, and as far as they went they showed that the sensory fibres arose from the same thoracic roots as those of the major accelerator.

The conclusion that the vertebral nerve caused no reflex movement made it necessary to investigate the cause of the reflex movement which had been described as occurring when it was stimulated. On dissection, I found that a small nerve from the seventh cervical to the musculus longus colli was attached to the seventh cervical ramus. This nerve readily caused reflex action. When it was separated from the vertebral nerve the vertebral nerve caused peripheral effects but no reflex action of any kind.

The next point to consider is the supposed passage of sensory fibres from the heart to the central nervous system by way of the cervical sympathetic. Since the vagus contains sensory fibres it is necessary, when stimulating the sympathetic, to make certain that it contains no vagus fibres. To this end I isolated the cervical sympathetic and cut through the tissue between the ganglion nodosum and the superior cervical ganglion, leaving the anterior branches of the superior cervical ganglion intact. Stimulation of the head end of the cervical sympathetic caused, then, no reflex movement or other reflex effect. Between the two ganglia there are slender intercommunicating branches, and the vagus sends half a dozen to a dozen nerve fibres to the superior cervical ganglion. When these are not cut, I have sometimes found that the cervical sympathetic causes a brief checking of respiration, but I have not found any reflex head or body movement. As with the vertebral nerve, so with the cervical sympathetic, a reflex movement may be obtained if care is not taken that sympathetic fibres only are stimulated. Not infrequently a small nerve filament is given off by the vagus—usually from the superior laryngeal nerve—and runs with the cervical sympathetic. It corresponds in the main with the depressor nerve of the rabbit; it causes a fall of blood pressure, and, usually at any rate, it causes also marked inhibition of respiration, and, following this, reflex movement, chiefly or solely of the head. The reflex movements which have been described as produced by stimulating the cervical sympathetic were then, I consider, produced by the depressor nerve. It may be mentioned that a few myelinated fibres from the glosso-pharyngeal nerve sometimes enter the head end of the superior cervical ganglion. What becomes of these is not known.

Another form of surgical operation is based on the theory that the pain in angina pectoris arises from the excitation of nerve fibres ending in the aorta. Since in the rabbit the depressor nerve has been shown to send nerve fibres to the aorta, the aim is to cut the depressor nerve. But in the rabbit the depressor nerve has very few sensory (pain) fibres, and they appear to be inconstant, for many observers have found none. If, then, in man the exact homologue of the rabbit's depressor were cut, the section would have very little effect on the pain of angina pectoris unless the centres were very greatly sensitised. But, as I have said, the depressor in the cat has sometimes at any rate an appreciable number of sensory fibres, and this may also be so in man.

Daniélopolu, in a recent paper,[4] suggests that in angina pectoris the nerves cut should be the cervical sympathetic with any cardiac branches it gives off in the neck, the vertebral nerve, and the depressor. The experiments I have mentioned above show, I think, that if all these nerves were cut, no appreciable number of afferent fibres (of any kind) passing to the spinal cord by way of the sympathetic would be severed. Most of the vagus afferent fibres passing from the aorta would be cut, but a very small part (if any) of those passing to the heart.

The cardiac afferent fibres existing in the sympathetic can be severed without interfering with the innervation of the head, neck, or fore-limbs by cutting the major and minor accelerator nerves (most of these are probably in the major nerve), but this would sever also all the known sympathetic fibres both afferent and efferent of the head, lungs, and thoracic part of the œsophagus. From an operative point of view the simplest procedure is to cut the nerves passing medially from the ganglion stellatum, leaving intact the vertebral nerve and other rami communicantes. This, however, severs the sympathetic fibres to the head as well as those to the thorax. In the cat it is a very simple operation, and in those cases in which it has been performed it has not been found to have any fatal effect.

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VITAMIN B AND LACTATION.

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THE question as to what constitutes a suitable diet is one which commands a considerable amount of attention at the present time. Physiologically, we are told that a complete diet should contain protein, fat, carbohydrate, mineral salts, roughage, water, and vitamins A, B, and C. Some physiologists already want to claim the existence of a fourth vitamin, but this has not yet been conclusively proved. The *amount* of each constituent needed for health presents a difficult problem. With regard to carbohydrate, fat, and protein, various proportions are suggested as good dietaries—e.g., Voit gives 118 g. protein, 56 g. fat, 500 g. carbohydrate; and Atwater 125 g. protein, 125 g. fat, and 400 g. carbohydrate. Although there are slight differences, these dietaries agree in the main, and a ration of about 100–120 g. protein per day is found to be satisfactory.

When we come to consider the amounts of vitamins essential for the bodily welfare, we have, at present, no figures on which to base our ideas. It is reasonable to assume that there is a minimum, and if the intake falls below this, abnormal symptoms and disease will result. The literature on this subject is very extensive and a vast amount of work has been done to demonstrate the effects of lack of one or more vitamins. On the other hand, when one wants to consider how much of a vitamin is required for health, there is practically no definite evidence. It is frequently suggested that an "adequate" amount must be taken, but this is of no help to the practical dietitian. It is highly probable that the absence of any real data in this connexion is due to our inability to prepare chemically pure vitamins. The amount of these substances present in foods is usually given as +, ++, &c., but of course this is merely a rough indication of the vitamin content of that particular food. Further, one worker may give the content as + and another as ++, the discrepancies probably being due to different methods of investigation. There is very little research work which throws any light on the exact amount of any vitamin necessary, but Osborne and Mendel[1] have demonstrated that there is a quantitative relation between the vitamin B requirement and the size of the animal. These observers were working on rats, and Cowgill's[2] experiments on dogs afford further evidence in support of this statement. Some experiments of the author's indicate that the requirements of the lactating animal (rat) in respect of vitamin B are far in excess of those of the non-lactating creature. In a previous paper[3] it was shown that an excess of protein in the lactating rat's diet led to the development of abnormal symptoms in the suckling babies, and that the baby rats rarely survived. In a later paper[4] it was pointed out that the abnormal symptoms could be entirely obviated by adding to the mother rat's diet any food rich in vitamin B. Thus it was shown that vitamin B is a very important constituent of a lactating rat's diet. Possibly this is also true of a human mother's diet.

The experiments described below are of interest in that they prove that a diet may be eminently suitable for growth, maintenance, and reproduction, and yet produce harmful results in the sucklings if continued during lactation, in spite of the fact that the mother rat remains well.

Experiments and Results.

(*a*) *Diets used:* (1) 30·0 g. white bread, 3·0 g. food casein, 3·0 g. butter, 0·7 g. salt mixture,[5] water; (2) 30·0 g. white bread, 12 g. food casein, 3·0 g. butter, 0·7 g. salt mixture, water; (3) 30·0 g. white bread, 3·0 gluten, 3·0 g. butter, 0·7 g. salt mixture, water; (4) 30·0 g. white bread, 100 c.cm. whole milk;

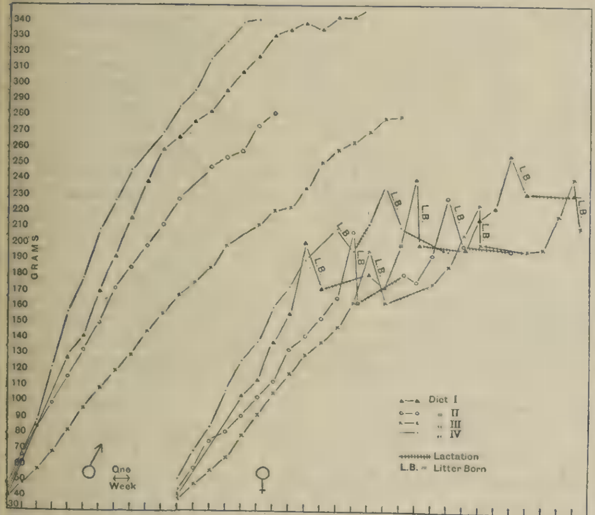
(5) small amounts of bread and milk per day, supplemented by kitchen scraps—i.e., a good mixed diet.

In diets 1, 2, 3, 4 the constituents were well mixed to form a paste, so that the rats could not pick out any one factor. The animals were allowed to eat as much as they liked; they were fed once a day, and the amounts were increased when necessary—i.e., if only a small quantity were left, the ration was increased, all the constituents being increased proportionately.

(*b*) *Method.*—The experiments were started when the young rats were three weeks and two days old. The young are usually weaned at three weeks, and are given a diet of bread and milk for two days, after which they receive the experimental diet. Six males and six females were used in each experiment; they were kept in a cage together, and therefore it was possible for breeding to take place. When a doe was pregnant she was removed from the large cage and placed in a small one by herself, where she remained until the litter was old enough to be weaned (unless she was unable to rear them), when she was returned to the large cage until she again became pregnant. At the beginning of the experiment the young rats were weighed daily, except Saturdays and Sundays, each animal being weighed separately. When they were older and therefore not gaining weight so rapidly, they were only weighed once a week. When litters were born the number of young was reduced to six on the day after birth. The mother was weighed every day and also the litter as a whole.

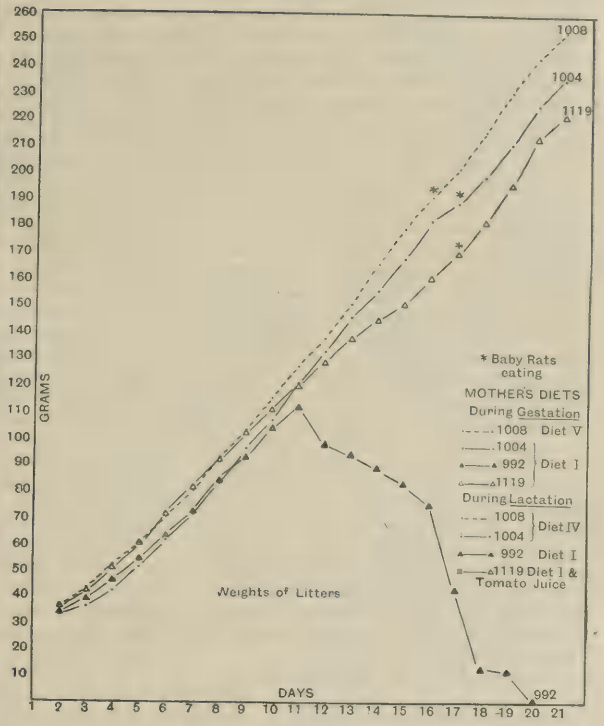
(*c*) *Results:* 1. *Growth.*—The male curves (Chart 1) are taken from the average weights of six animals in each experiment. The female curves represent the growth of individual animals as it was not possible to take an average in this case, because the rats became pregnant at different times. On all three diets, 1, 2, and 3, the young rats grew well and were fit and healthy. In one experiment (diet 1) the feeding was continued for nine months, and this represents a large proportion of the animal's life, because the average age of the rat is 3–4 years. On diet 3 they did less well, probably owing to the fact that gluten is not such a good protein as caseinogen from the growth point of view. (This will be dealt with more fully in a later paper.) On diet 1 the animals showed a growth curve almost equal to that of the control animals, and decidedly better than the normal curve given by other workers—e.g., Donaldson.[6] Thus these diets appear to be satisfactory for the young growing animals and also for adult ones.

CHART 1.



2. *Reproduction.*—Litters were produced at the usual time. The first three does which had litters while being fed on diet 1 were given the same food during lactation, but not one baby survived. They all died, having shown the typical symptoms previously described.[7] The growth curve of the litter of one of the experiments is given as an example (Chart 2, 992). When the next litters were born the mothers were fed on bread and milk (15 g. bread to 50 c.cm. whole milk) and these babies were successfully reared (Chart 2, 1004). This diet was chosen because it has been found to be a suitable one for the lactating rat, probably because it is a good mixed diet as far as the essential physiological constituents are concerned. In some further experiments the mothers were given diet 1 + tomato-juice (6 c.cm. tomato-juice to 15 g. bread, &c.) as soon as the litters were born, and again the babies were successfully reared (Chart 2, 1119). Tomato-juice was used as a source of vitamin B. There is nothing specific about tomato-juice; any extract containing vitamin B was equally effective. In Chart 2, 1008 is the normal growth curve of a litter whose mother received bread and milk during lactation, and a mixed diet of kitchen scraps and bread and milk (i.e., she was a stock animal) during gestation. It will be seen that there is very little difference in growth between 1008 and 1004. This suggests that the diet 1 is quite satisfactory during gestation, but not for lactation. Experiment 1119, and other similar experiments not quoted here, show that diet 1 can be made satisfactory for the lactating rat by the addition of more vitamin B.

CHART 2.



Discussion.

Diets 1, 2, and 3 may be regarded as physiologically complete, with the exception of vitamin C which is poorly represented, if at all. In some earlier experiments it was found that the addition of lemon-juice to such diets made no difference to the growth and condition of the rats, and therefore it has been omitted since. Fat and vitamin A are represented in butter. Bread contains a large amount of carbohydrate, but is low in protein; this factor is supplemented by the addition of more protein, either as caseinogen or as gluten. Vitamin B is present in the white bread,[8] and salt mixture was added to ensure a sufficient supply of mineral salts.

Diet 1 consists of approximately 22 per cent. protein, 12 per cent. fat, 66 per cent. carbohydrate; Voit's dietary gives about 18 per cent. protein, 8 per cent. fat, and 74 per cent. carbohydrate, therefore in comparison diet 1 is richer in protein and fat, and lower in carbohydrate. Atwater's standard diet provides 19 per cent. protein, 19 per cent. fat, and 62 per cent. carbohydrate, and hence contains a far greater proportion of fat than does Voit's standard. Diet 1 is richer in protein than either the dietary of Voit or Atwater, but is possibly more comparable to the diet of the more wealthy classes of human beings, who consume greater quantities of protein than the poorer classes, because protein foods are, as a rule, expensive. Diet 1 appears highly satisfactory for the rat *except* during lactation, and it can be made suitable for that period by the addition of more vitamin B. In other words, it appears that the lactating animal requires a greater supply of vitamin B, or else she is unable to rear her offspring successfully. This point is one which may prove of interest to the medical profession, in that nursing women so frequently cut down the fruit and vegetables in their diet to a minimum. Hence they are obviously lowering their vitamin B intake, since fruit and vegetables are an excellent source of this vitamin.

Diet 2 is much richer in protein and is, perhaps, hardly comparable to the dietary of the average human being, yet it is of interest in that it is like diet 1 in providing for growth and reproduction, but is absolutely unsuitable for lactation. As with diet 1 it can be rendered suitable for the lactating animal by the addition of vitamin B, but because it has a higher protein content than diet 1, still more vitamin B must be added to prevent the occurrence of the bad symptom in the sucklings.

Diet 3 is very similar to diet 1 in composition, except that the protein in this case has a lower biological value, and therefore the growth of the young rats is not so good. Otherwise the experiments gave identical results—i.e., diet 3 provides for growth and reproduction, but the mother rat cannot rear her babies on diet 3 unless more vitamin B is added.

Summary.

Thus, in general, one may say that various diets which are excellent for the growing animal may be totally unsuitable for the lactating animal. In the experiments quoted in this paper, with diets rich in protein, the lactating rat *must* have a greater supply of vitamin B than at other periods of her existence, otherwise she cannot rear her young successfully. If this be true of human beings, a mother taking a diet containing but little more protein than the Atwater standard should include in that diet considerable quantities of foods (e.g., fruits and vegetables) containing vitamin B.

The expenses of this research were defrayed by a grant from the Medical Research Council.

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National Maternity Hospital, Dublin.—At the annual meeting of the National Maternity Hospital, held last week, it was stated that 1200 patients had been admitted during the year, and there were 3132 persons treated at the dispensary; 111 students and 75 nurses attended the practice of the hospital. The total receipts exceeded the expenditure by £75. It was pointed out that the present buildings in Holles-street were inadequate for the work of the hospital, and the site gave no possibility of enlargement.

RECENT NEUROLOGICAL THERAPEUTICS.

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AND
E. ARNOLD CARMICHAEL, M.B., Ch.B. Edin.,
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Typhoid Vaccine Treatment of Disseminated Sclerosis.

This form of treatment has been practised by us on a series of 70 cases of disseminated sclerosis at the National Hospital during the last 15 months. The idea originated in Vienna, at the Wagner Jauregg Klinik, where it was thought disseminated sclerosis was the result of some intestinal infection. Vaccines of various intestinal bacilli were tried and the most suitable was found to be typhoid. Eight to twelve intravenous injections of the vaccines are given at intervals of one, two, or three days, whichever is most suitable. After each injection one should, as far as possible, obtain a rise of temperature to about 100° F. This rise of temperature takes place within a few hours and then returns to normal within 12 hours. The first dose given is 25 million, and at each successive injection the dose is increased, though if the reaction has been severe from one dose, that same dose should be repeated at the next injection. As much as 400 million has been given in the final dose to obtain the necessary reaction.

This treatment combined with silver salvarsan injections in several early cases brought about a fairly good remission. In the older cases spasticity was slightly reduced, both in the remitting and in progressive non-remitting types of disseminated sclerosis. Two cases of disseminated sclerosis were recently admitted into hospital and treated with typhoid vaccines subcutaneously. The doses given were similar to those used intravenously. Eight were given in each case. No rise of temperature was observed. One of the cases was of the remitting type, the other of the progressive, non-remitting type. Both patients were unable to walk on admission and could not sit up in bed without help. General spasticity was well marked in both cases. The result in these two has been astonishingly good. They can now walk fairly well and spasticity has been much reduced. From these two cases it would appear that a rise of temperature was unnecessary.

As a result of our observations we are of the opinion that this method of treatment offers more satisfactory results than any other recognised method. The usual massage, passive movements, and remedial exercises are combined with this form of treatment.

Sodium Salicylate in Encephalitis Lethargica.

During the epidemic of encephalitis lethargica in the early months of this year several cases were admitted to the National Hospital, Queen-square, for treatment. Owing to the unsatisfactory results obtained by various forms of treatment, such as intravenous hexamine, intramuscular magnesium sulphate, and fixation abscesses, it was decided to attempt the alleviation of symptoms by means of intravenous injections of a solution of sodium salicylate 1 g. being dissolved in 5 c.cm. of normal saline. The injections were given daily for seven days in increasing doses commencing with 0·5 g. of sodium salicylate, and working up to 2·5 g. as a final dose, a total of 10 g. being given. An interval of a few days was then allowed to elapse and the course of treatment resumed. Five acute cases were so treated. Each case varied markedly in type, the following types being represented: myoclonic, excessive drowsiness, peripheral neuritic, and choreiform. Each case showed a marked improvement clinically; the drowsiness subsided; the myoclonic movements rapidly faded away; the pains of the peripheral neuritic type eventually completely disappeared; and the choreiform movements ceased. Three of these cases reported several months later; it was then found that the alleviation of symptoms that had occurred had been maintained and, moreover, that no fresh symptom had arisen.

Stimulated by such results we next treated three cases of the post-encephalitic Parkinsonian syndrome. The results obtained in these cases were undoubtedly less successful, but in two of the cases the ability to write a legible hand returned and the rigidity was definitely reduced. These latter cases we have been unable to follow up.

In assessing the value upon this form of treatment we desire to state that we hold no brief for it as a specific cure. However, it may be justly said that the alleviation of symptoms was highly satisfactory, and that in future one could not say that cases of encephalitis lethargica had been fully treated, as far as present-day therapeutics allowed, unless intravenous salicylates had been given. We are at present using this form of treatment in acute cases of Sydenham's chorea. A further report of its value in such cases will be published at a later date.

Malarial Treatment of General Paralysis of the Insane.

This form of treatment was first systematically employed in 1917 in Vienna, though the method was suggested by Wagner Jauregg as early as 1887. The principle depends on the fact that in chronic disease a remission may occur after the attack of an acute specific fever. Artificially induced benign tertian malaria was found to be the best means of obtaining this fever.

The method of treatment consists in the withdrawal of about 4 c.cm. of blood from a patient suffering from benign tertian malaria who has not been treated with quinine. This blood is injected intravenously, or preferably subcutaneously, into the general paralytic. An irregular temperature is run for a few days to two weeks, when the typical rigors commence. A series of 12 rigors is allowed to take place; the last of this series may occur daily—double tertian. In some cases the rigors may be daily from the beginning. The fever is then terminated with quinine; the first dose of 15 gr. is usually sufficient to prevent another rigor.

Of the cases treated at the National Hospital, a full account of which was published elsewhere,[1] a few cases had remissions. Of the total of 18 cases mentioned in this article, now increased to 24, only two showed remissions comparable to those obtained in Vienna, so that one cannot confirm the optimism of the continental writers. Nevertheless, to obtain a remission in 1 per cent. of the cases of true general paralysis by this treatment warrants its continuance until some better method is found.

Salvarsan injections have been given on the cessation of the fever to improve the anæmia produced by the malaria and to act as an adjuvant to the treatment.

The Tremor of Paralysis Agitans Reduced by Splinting.

In idiopathic and post-encephalitic paralysis agitans the tremor in the hands may be very violent. This can be greatly reduced in many cases by overstretching a group of muscles such as the flexors or the extensors of the hand at the wrist. Radial or ulnar deviation of the hand may give an equally good result. This fact has been utilised by us in cases where the tremor was unilateral and troublesome. A splint was devised of light material with straps and buckles which maintained the hand in ulnar deviation. This could be fixed by the patient himself and could be worn for short periods without much discomfort.

The slight discomfort of the splint was greatly outweighed by the relief gained from a greatly reduced tremor. One post-encephalitic patient with a gross tremor of one hand, as if constantly playing the banjo, obtained much comfort even from a clumsy temporary splint, which maintained the hand in ulnar deviation.

Hypertonic Salines in Cerebral Tumours and Tabetic Crises.

The headache of cerebral tumours is well known to be intractable to practically all analgesics given by the mouth. Henry Cohen reports the use of hypertonic solution given intravenously in six cases of inoperable cerebral tumours. During the last six months we have had the opportunity of treating 12 cases of cerebral neoplasm, two of which proved on operation to be endotheliomata and the remainder gliomata. In each instance 30 c.cm. of a 30 per cent. sodium chloride solution were given intravenously. Following the immediate burning sensation throughout the body, relief of the headache was obtained; but we are unable to confirm Cohen's experience as to the duration of the relief. In all our cases the alleviation of the headache did not last more than 36 hours; hence we have repeated the administration of the solution every second day. On two occasions it was given immediately before operation and proved of undoubted value in lessening the intracranial pressure. In one case it was given after the bone had been removed, and it was evident to all present at the operation that the intracranial pressure rapidly became less, allowing the dura mater to be incised without immediate bulging of brain tissue and its possible consequent damage.

Four patients suffering from subtentorial neoplasms were similarly treated; two of these had a cerebello-pontine angle tumour, one had a large cerebellar cyst lying in the mid-line, and another a tumour of the fourth ventricle. In each of these cases the headache was increased and in one marked quickening of the pulse- and respiration-rates resulted. To explain these results allow us to postulate that the cerebro-spinal fluid is absorbed by the meninges covering the cerebral hemispheres, and that, as a result of the sudden relief of pressure externally, the tumour becomes larger and obstructs the inter-ventricular flow, thereby causing a relative hydrocephalus with its attendant headache. Moreover, as this might institute a herniation of the medulla into the foramen magnum we feel that administration of hypertonic saline in neoplasms of the posterior fossa is fraught with considerable danger.

An acromegalic patient, without enlargement of the pituitary fossa, obtained no relief of the temporal headaches by this form of treatment. Again, the headaches of two cases of pituitary tumour failed to respond to this mode of therapy.

A further extension of the usefulness of hypertonic saline occurs in the treatment of gastric crises and tabetic pains. In four cases suffering from very severe gastric crises hypertonic saline was injected with immediate consequent cessation of the attack. One case with repeated attacks responded three times and then failed to respond again; yet another case attends hospital immediately on the ushering in of a crisis for this treatment and obtains relief consistently. In six cases of very severe tabetic pains immediate relief has always been obtained.

Frequently following cranial operations a degree of œdema of the eyelids may arise which can be immediately reduced by intravenous injection of hypertonic saline. In one case we had the opportunity of watching a papillœdema for one hour after injection of the solution. Six minutes after the injection the height of the swelling was reduced from +5D to +3D, and only returned to +5D 12 hours later.

The following conclusions may thus be drawn: (1) That hypertonic saline given intravenously is of value in relieving headache in cases of cerebral neoplasm, either gliomata or endotheliomata. (2) That an element of danger arises in cases with neoplasm in the posterior fossa owing to a possible hydrocephalus resulting. (3) That gastric crises and tabetic pains may be relieved. (4) That papillœdema and orbital œdema are reduced. (5) That pituitary tumour headaches are not relieved.

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[1] Journal of Neurology and Psychopathology, May, 1924, vol. v., No. 17.

Clinical and Laboratory Notes.

A CASE OF CONTRACTED TENDON TREATED BY THE ZANDER METHOD.

BY MAGDA H. HAMEL, M.R.C.S. ENG.

THE problem of restoration of good function in a long-established contracture of a tendon, though happily rarer than of old—owing to generally more efficient primary treatment—still confronts us from time to time, most frequently in the tendo Achillis. I have found that in old-standing cases a simple tenotomy gives less good results than a gradual stretching by mechanical means, of which the Zander machine is the most efficient, overcoming as it does the disuse immobility of the joint while the tendon is being stretched.

The following case, typical of many in which 20°–30° of dorsiflexion have been obtained in the course of some three weeks, was that of a foot with contraction of tendo Achillis following anterior poliomyelitis.

A girl of 21, who had anterior poliomyelitis at the age of 5 years with foot-drop and contraction of Achilles tendon as sequelæ, was sent to me on July 11th by Dr. G. L. Crimp. An Achilles tenotomy was performed three years before this date, but when I first saw the patient her foot could only by force be dorsiflexed to an angle somewhat more obtuse than a right-angle, though prolonged massage and movements had followed the tenotomy. In order to obtain greater flexion prior to a tendon transplantation I used the Zander ankle-machine. This machine, invented by Dr. Gustav Zander, of Stockholm, in 1865, and much more used on the continent than in this country, brings a strong, steady, easily regulated pressure to bear on the joint and tendons, and in my experience is more successful than any other method.

FIG. 1.

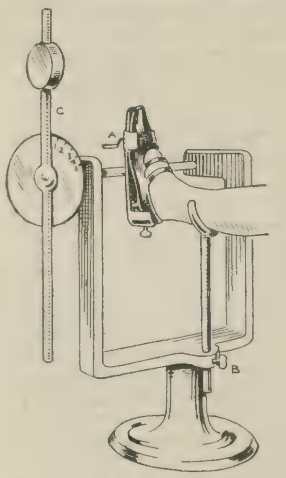

FIG. 2.

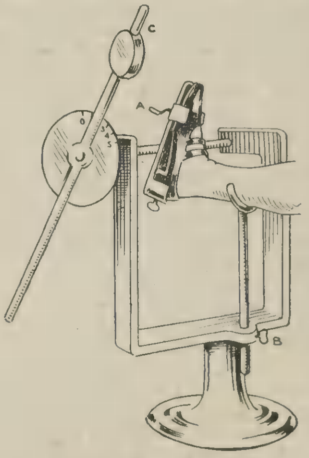

FIG. 1.—Leg placed on Zander machine prior to tendon stretching A, foot clamp; B, leg rest; C, lever, worked by operator.

FIG. 2.—Showing dorsiflexion of foot.

The foot is fixed in foot-clamp A of machine as in Fig. 1; leg-rest B is adjusted, and then the operator gradually pushes over lever C from zero position to points 1 or 2 on the scale according to sensations of patient and "give" of joint and contracted tendons (see Fig. 2). This movement is repeated for 20 minutes on the first day and the point of greatest flexion noted on the scale. On the next day this point will probably be reached quite easily, and a further few degrees of flexion will be obtained on each day of treatment. In this particular case the required degree of flexion was obtained in about three weeks, during which time the patient attended three sessions a week for this purpose, and also for electrical stimulation of the extensor longus hallucis muscle prior to its transplantation into the tendon of the completely paralysed tibialis anticus. Incidentally, after six weeks' treatment, the extensor longus hallucis, from a condition of great weakness, has now reached practically normal contracting power. While on the machine the patient felt not only the stretching of the Achilles tendon but also slight pain over the anterior aspect of the ankle-joint. This is not unusual in such old-standing cases for the reason explained above—i.e., the limitation of mobility due to disuse of the joint. The articular facets of the bones forming the ankle-joint now glide smoothly over a sufficient range to enable transplantation to be successful.

Tenotomy alone can only cure half the trouble in these cases, whereas on the Zander machine the two factors of contraction of the tendon and disuse atrophy of the joint are dealt with concurrently.

MALARIAL THERAPY IN GENERAL PARALYSIS OF THE INSANE.

THE DISAPPEARANCE OF GASTRIC CRISES AS ONE OF THE RESULTS.

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THE gastric crises common in tabes dorsalis, and which occur more often than is suspected in general paralysis of the insane, are exceedingly resistant to ordinary dietetic and drug treatment, so that the cessation of these distressing occurrences in a case of G.P.I., after treatment by malarial therapy, is deemed worthy of note. The only drug which can be relied on to control the vomiting and pain of a gastric crisis is morphine, and tabetic patients are especially prone to contract the morphine habit, while the operative treatment is so severe as only to be warranted in cases of the utmost severity.

The patient, a married man, aged 34 years, was admitted to Cane Hill Mental Hospital on Oct. 3rd, 1923. It is stated that he contracted syphilis at the age of 18, which had been untreated until two years from his certification.

He had been admitted to Charing Cross Hospital on Feb. 17th, 1922, suffering from sudden collapse, fainting attacks, and constipation, and with a history of frequent vomiting for six months—sometimes as often as 30 times in the 24 hours, with free intervals lasting up to seven days. These vomiting attacks were accompanied by severe epigastric pain and occurred independently of food. He had lost 3 st. in weight and was much debilitated. His blood was found to give a positive Wassermann reaction. He was given anti-syphilitic treatment, consisting of mercurial inunction and two injections of N.A.B.

After admission to Cane Hill he had a definite gastric crisis on Oct. 31st, 1923, when vomiting lasted for 36 hours. Further similar attacks were noted on Dec. 4th, 11th, and 22nd. Malarial therapy was started on Feb. 5th, 1924, and towards the conclusion of the treatment he had a further attack of persistent vomiting and epigastric pain. In this instance the vomiting continued for 14 hours. All these attacks of vomiting presented the characteristic features of a gastric crisis—i.e., onset sudden, severe epigastric pain, with repeated vomiting independent of food, a definite girdle of anæsthesia, pallor, and sweating. He tolerated the malarial therapy well and did not develop any complications. Since then he has remained absolutely free from all gastric disturbances of any kind, and has been on full ordinary diet.

While it is, of course, not justifiable to draw conclusions from a single instance, the cessation of these distressing occurrences in this case over a period of eight months makes it probable that this treatment might be worth a trial for severe and frequent gastric crises in an ordinary tabetic. The mental improvement was, of course, the object of the malarial therapy. That this was achieved is shown by the fact that the patient could be discharged as recovered, and it is also highly satisfactory that a physical condition so distressing and recalcitrant to ordinary treatment was relieved at the same time. A series of cases of general paralysis are at present being treated at this hospital and it is hoped, at a later date, to publish a full report.

I am indebted to Dr. S. C. Elgee, the medical superintendent, for permission to publish this case, and I thank Colonel S. P. James, of the Ministry of Health, for his help and assistance.

URETHRAL STONE OF UNUSUAL SIZE.

BY JOHN CLAY, C.B.E., F.R.C.S. ENG.,
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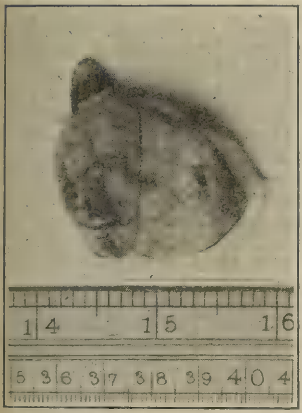
THE unusual features presented by this case are the size of the stone, and what is, perhaps, still more remarkable, the little discomfort it occasioned during its formation.

The patient, aged 44, married, with three children, is a hewer in a coal-mine. Twenty-seven years ago, when a boy of 17, he was crushed between wagon buffers, sustaining a fracture of the pelvis and a rupture of the bladder and urethra. He was operated on by Mr. Page, of Newcastle-on-Tyne, and made a good recovery. He followed his occupation without discomfort until Tuesday, April 22nd, 1924, when he began to suffer from very severe dysuria, and the scrotum began to swell. He attributed the condition to working in a wet part of the mine. On April 25th he was admitted to the Royal Victoria Infirmary, Newcastle-on-Tyne, with retention and signs of extravasation of urine. He was operated on by Mr. Hamilton Barclay, who made a suprapubic cystotomy, and incisions into the extravasation. No instrument could be passed per urethram into the bladder. On May 13th, when examining the patient under an anæsthetic, I was able to feel definite crepitus in the swelling in the perineum, and the mass felt like a stone. I cut down upon it and removed a large stone. The stone (see figure) was $2\frac{1}{2}$ inches by $1\frac{1}{2}$ inches, and it weighed 9 drachms 20 grains. It had evidently fractured, and where the two fragments were in contact there were perfect saddle-shaped surfaces. At the distal side of the part of the urethra containing the stone there was a very fine channel, leading through a short stricture. I opened the urethra distal to this stricture and divided the stricture completely, passed a silver catheter into the bladder, and tied it in. The convalescence was smooth and uninterrupted.



Urethral stone.

I have been unable to find a record of the sizes of stones removed from the urethra, and certainly none of those that I have seen have in any way approximated in size to this. Twice before I have felt crepitus produced by urinary stones. In one case there were many stones in the kidney, and in the other stones in the prostate. So crepitus is a sign that sometimes assists in the diagnosis of stone.

In the course of my work I see many patients who are in receipt of compensation for disabilities, and it is remarkable how slight a defect sometimes renders a man incapable of following his occupation; yet this man, in spite of a very narrow stricture of the urethra, and a stone of this size lodged behind it, was able to continue his work as a coal hewer without even discomfort. The only explanation I can offer is, that there are men whose nervous systems are so constituted that they do not react to injuries and disease to the same extent as others, and it is, perhaps, fortunate for the mining industry that there are many such men.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

A MEETING of this section was held on Nov. 5th, when Mr. H. J. PATERSON delivered his Presidential address, which he entitled

The Lure of the New.

[Speaking of the advances of modern surgery, he quoted Huxley's cynical remarks that the "customary fate of new truths is to begin as heresies and end as superstitions," and continued :—]

Nevertheless we are ever seeking new lamps for old. Some of our new lamps have a dazzling brilliance, but their endurance is transient; others shine as beacon lights on the pathway of progress. Although every inventor or originator is not necessarily an Aladdin, he plays a part of supreme importance in surgery, as in every other field of human activity. Whether his ideas be trivial or important, he stimulates thought. Like Lister he may change the whole practice of surgery, or he may merely make some small suggestion which ultimately may prove part of an epoch-making discovery. His new lamps may be useless for the purpose for which they are designed, but in other directions they may prove of extreme value. Sayre's plaster jacket was intended for the treatment of scoliosis. The method was sound, but its application to this particular disease was erroneous, but by drawing attention to this subject, in time it led to the enunciation of the correct principles on which lateral curvature should be treated. The birth of modern intestinal surgery may be attributed to an invention long since discarded, Murphy's button. The introduction of this method demonstrated the possibilities of intestinal anastomosis, and by focusing interest on this subject led to methods which have superseded the use of mechanical appliances.

Not seldom the new lamps given to us by inventors are spoilt by injudicious modifications or improper use. When Sir Arbuthnot Lane introduced his method of plating simple fractures, some surgeons employed it for the treatment of compound fractures, with unsatisfactory and often disastrous results. They were putting a valuable procedure to a use to which its originator stated it was totally unsuitable. I do not suggest that a new invention cannot be improved, but before attempting to make improvements it is wise to ascertain whether our ideas have already been tried without success.

The Disadvantages of Progress.

I think it will be conceded that even the greatest discoveries have disadvantages as well as compensations. The two greatest blessings given to surgery during the past century, anæsthesia and the principles fo asepsis, are not exceptions to this generalisation. Both have tended to prolong operations unnecessarily, so that to this extent they have been harmful, although the sum of the benefits they have conferred is priceless. In pre-anæsthetic days the surgeon tried to complete his work as speedily as possible, because he was inflicting pain. With the introduction of anæsthesia the surgeon could be more deliberate in his methods, and so unconsciously prejudiced the interests of his patients. In this respect the war was a bad training ground for young surgeons. Many long and very severe operations were performed for abdominal injuries, but the natural resistance of the patients was very different from that of the ordinary patient of civil life. In his fascinating Presidential address to this section two years ago, Mr. James Berry emphasised the value to the young surgeon of a thorough training in the making of post-mortem examinations. I would add to this wise advice that, in addition, some experience as an anæsthetist should form part of the training of anyone who aspires to practise surgery. He would learn not only many useful surgical lessons, but he would understand more of the shock produced by operations. The drugs used to induce anæsthesia are highly toxic, and we are apt to forget that apart altogether from the effect of the operation, the anæsthetic has also a harmful influence on the patient. Every experienced anæsthetist knows that even the strongest patient begins to flag perceptibly after an hour, and after an hour and a half this change is still more accentuated. Dr. R. T. Morris, of New York, relates how a house surgeon who had served under two surgeons of about equal capability was asked his reason for the difference in their statistics. His reply was "About ten minutes." There is a wealth of wisdom in this seeming exaggeration. The expert anæsthetist, not being a politician, keeps our patients in such a state of tranquillity that we are tempted to be almost too deliberate, and to forget the importance of rapid, or rather expeditious operating. Let us each ask ourselves whether our technique may not be simplified without loss of efficiency. We must not make a goddess of technique and forget that it is of no less importance to assist nature by conserving the patient's resistance. In our attempt to secure perfect asepsis we may so prolong the operation that the patient's chances of recovery are prejudiced. Better incomplete technique and a live patient than a perfect technique and a dead patient. I am not sure that a good case could not be made against the use of rubber gloves. At any rate, Sir Harold Stiles without them has achieved results surpassed by none. Lawson Tait, too, showed what could be done with a simple technique and expeditious operating. His results were so good that the surgeons of his day took refuge in regarding their accuracy with an attitude of unphilosophic doubt.

[The lecturer then pointed out the danger of "short cuts" as instanced in the practice, largely fostered by war surgery, of omitting drainage of a wound as far as possible. In his experience, excision and primary suture were rarely satisfactory. Passing on to the value of laboratory methods in diagnosis, he emphasised the point that such methods were an aid to, but not a substitute for, clinical observation.]

Intestinal Stasis.

Not one of the least dazzling lamps given to medicine in recent years is the hypothesis that intestinal stasis is responsible for many of the ills to which our flesh is heir. It is alluring in its simplicity and fascinating from the vista of hope which it opens up. It has been given to few to originate two such startling proposals as the operative treatment of simple fractures and the surgical treatment of intestinal stasis, and Arbuthnot Lane has not escaped the criticism and bitter opposition which falls to the lot of all pioneers. Few subjects have excited greater controversy than the statement that intestinal stasis produces toxæmia. It has been assumed that such teaching is unscientific, because we do not know the nature of the toxins produced or even of their existence. This argument need not perturb the seeker after truth. The malaise and debility which accompany tuberculosis were recognised long before the discovery of the bacillus which produces the toxins which are the cause of the constitutional symptoms. This much at least we do know, that patients who are the victims of a disorder which impairs their mental and bodily vigour, which causes such constant discomfort and pain as to reduce them to a state of misery, and which renders them incapable either of work or enjoyment of the pleasures of life, may be relieved by treatment directed to the removal of existing intestinal stasis. This is a truth established by the work of surgeons all the world over. When, however, we consider to what extent surgery should interfere, there is room for wide divergence of view. Whether all Lane's teaching be true or not, time alone can show, but without doubt his lamp has cast light in hitherto dark places, and has led to a new conception of abdominal diseases.

[The lecturer then spoke of the modern tendency towards specialisation in the many fields of modern surgery, and dealt at some length with the relative merits of gastro-jejunostomy and partial gastrectomy in the treatment of gastric ulcer. A battle had been raging between the "ectomists" and the "ostomists," and for the present numerical victory was with the "ectomists," but "safety first" was a good slogan in surgery, and in the hands of the average surgeon partial gastrectomy, as a severer operation, had a much higher mortality than gastro-jejunostomy. Considering the position of surgery as a whole, he said :—]

The Art of Surgery.

It is significant that, in spite of the multiplication of specialities, the general physician and general surgeon in their outlook and attitude of mind are converging rather than diverging. The physician of to-day must be a surgeon except as regards the craftsmanship of their common art, and if I as a surgeon may say so, there are physicians whose surgical judgment cannot be excelled. Equally the modern surgeon, if he is to do his work with satisfaction to himself and with advantage to his patients, must have a wide knowledge of general medicine. He is no longer a carpenter to operate at the behest of another. He is rightly expected to make his own diagnosis and to form his own judgment. Indeed, a surgeon may be defined as a physician who has learned to use his hands. Art has been defined by Ruskin as "the operation of the hand and the intelligence of man together." Surgery is an art, and although, in addition, it is slowly and surely being built up into a science, it seems to me that the science must ever be subservient to the art. With all the aids that modern science can give, there still remains the personal factor, call it judgment, clinical acumen, intuition, or what you will. We must ever be on our guard that our judgment is not warped by the lure of the new. New lamps may add to our light, but they cannot altogether replace the old. The true wisdom of surgeons is experience. As Napoleon so well said : "The world is very old ; so we must profit by its experience. It teaches that old practices are often worth more than new theories."

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

AN ordinary meeting of the Society was held on Oct. 23rd, Sir PERCY BASSETT-SMITH, the President, occupying the chair.

Sir MALCOLM WATSON read a paper, which was profusely illustrated by means of the epidiascope, entitled

Observations on Malaria Control,

with special reference to the Assam tea-gardens ; and some remarks on Mian Mir (Lahore Cantonment).

Sir Malcolm Watson said he recently visited a large group of tea estates in Upper Assam for the purpose of advising on the control of malaria, which was prevalent in the gardens. It was evident to him that the disease was widely-spread throughout Assam, and from this and other causes the death-rate of the workers was high at one time, but the efforts which had been put forth of recent years had made a high death-rate a thing of the past, and the speaker paid a tribute to the medical officers of the gardens for what they had done. He first showed, in illustration of the measures which were effective in reducing malaria incidence, slides explanatory of what had been done in the Federated Malay States. Tide gates were established, and deep drainage of the mangrove swamps was carried out. This, with clearance of the jungle for 20 miles, had resulted in the complete abolition of the disease from the district, and the spleen-rate among more than 900 children was 0·9 per cent. Next, an open drainage system of coastal plains was carried out, and with this and the cultivation of the land, malaria disappeared. In the coastal hills malaria was found due to the presence of *Anopheles umbrosus* where the ravines were covered by jungle, and disease due to *A. maculatus* when the ravines were cleared. The problem was solved by putting the springs and streams into subsoil pipes, and using refuse oil. Since the health officers in Singapore began their work in 1912, it had been computed that they had saved 35,000 lives. Dr. Strickland made the important observation that inland hills which were under the jungle were free of malaria because *A. umbrosus* did not breed in them; only when they were cleared did the district become malarious, and then the disease was due to *maculatus*. In the matter of rainfall and general climatic conditions there was close approximation between Malaya and Assam.

The great physical feature of Assam was a broad flood-plain bounded by high banks and traversed by a winding, flowing river, which, however, formed two loops which became gradually silted up. The original jungle has been cleared away to make room for the rice-planting, and in the uncultivated land merging on this the speaker found *A. maculatus* and *A. minimus* in abundance, and malaria very prevalent. Among 9146 children he found a spleen-rate of 69 per cent. and of 2416 children of 2 years and under 61 per cent., had enlarged spleens. These particular estates were among the richest and best worked in India, and the coolies were well housed. In addition, pregnant women received good care, both before and after confinement, and ceased work during that period. But all the usual health measures failed to prevent infection of coolies by the malaria parasite, though it helped them to acquire immunity, an immunity apparently inherited by the children. Still, 69 per cent. of the children on the estates had enlarged spleens. Nothing short of a direct attack on the mosquito could be expected to stamp out the disease.

One method of controlling the insects was to remove all the coolie lines to a central spot, and to abolish all breeding places of the mosquito within half a mile of it. This would have meant a large sum for removing and rebuilding coolie houses. The alternative was to leave the coolies where they were and strike at the two dangerous species of anopheles: *A. maculatus* and *A. minimus*. Usually he found that the lower and flatter the land, the lower was the spleen-rate, for the higher the land, the better was the opportunity for *maculatus* to breed. In Assam it was in the best and best-managed estates which showed the highest prevalence of malaria. Experience, both that of Gorgas in America and of our own workers in the Empire, showed that ordinary sanitary measures were powerless to prevent malaria; there must be a proper system of drainage to eradicate the breeding places. Sir Malcolm Watson's advice could, therefore, be summarised in a sentence: The establishment of effective drainage, coupled with the administration of cinchona to children and all fever cases. These measures, he said, would soon result in the control of the disease.

From Assam, Sir Malcolm Watson proceeded to the Lahore Cantonment (Mian Mir). In the work carried on there between 1902 and 1908 he thought wrong methods were adopted, but it was the first attempt to control malaria in India, and the irrigation system complicated the problem and confused the issue. Certainly, however, the results expected were not achieved. He had great hopes for a very great diminution in the prevalence of malaria as a direct result of measures such as he had advised and carried out.

Discussion.

The President spoke of the importance, in this work, of intelligent coöperation with the medical officers on the part of the owners of the estates and lands concerned. Sir Malcolm Watson evidently had a large measure of that optimism which was such a factor in success.

Sir Ronald Ross, F.R.S., said the speaker's work had been very great, and he questioned whether either its extent or its importance was adequately appreciated in this country. The great work of Gorgas in the Panama region had the financial backing of the American Government, a very different state of affairs from that associated with Sir Malcolm Watson's work, which started at about the same date, some 25 years ago. The latter had to try to persuade hundreds of people, owners of land and others, to assist in the work, and it was a very difficult matter. The lecturer had shown how necessary it was to deal with the different species of mosquito in different ways; also how supreme was the importance of having no stagnant water about. He hoped the Indian Government would take the matter up energetically, and not allow mankind to be defeated by the mosquito, an insect which killed about two million people per annum. The campaign was not only necessary for the reduction of illness and suffering, but it was also eminently a paying proposition.

Sir William Leishman, F.R.S., said he thought Mian Mir was a much-maligned spot. Thirty years ago he spent three years there, and the British soldier in that place did not die very much from malaria, though the spleen-rates were appalling. Deaths were due rather to dysentery and enteric. In those days the importance of drainage was not realised. He hoped that the Treasury would take careful note of this communication.

Dr. Andrew Balfour said he had listened to the paper with mingled feelings of sadness and pride; sadness that after a quarter of a century of effort such a state of things now existed in India, and pride at the achievement which Sir Malcolm Watson's work had resulted in. There was great need for more apostles of hygiene to be sent out, like Sir Malcolm Watson, to persuade people on the spot to take a hand in their own remedial measures. He insisted on the great potency of soapy water in killing off mosquitoes, and said if this were used it would greatly reduce the still too-high incidence from this disease.

Major E. Austen expressed his pleasure that emphasis had been laid on the importance of biological research in this campaign, for the particular species being dealt with in a region must be known before measures undertaken could be expected to succeed. He agreed as to the destructive effect of soapy water; he had often noticed many dead mosquitoes after soldiers had washed in the water inhabited by insects, and some experiments he made with water from a used bath enforced the same lesson.

Dr. C. M. Wenyon spoke of an occasion when many anopheles and other mosquitoes came on board a ship which was ten miles from the shore. On another occasion, when at the same distance, a number of house-flies, which had been pursued by dragon-flies, reached the ship.

Dr. P. H. Manson-Bahr spoke of epidemics on board liners from the East which had occurred during the last two weeks, in order to enforce the need for a much more energetic dissemination of knowledge concerning malaria in every country. When the P. and O. liner *Macedonia* arrived in English waters she had lost one of her officers from malaria, and when she reached Southampton two of her officers, 20 to 30 of the white crew, and a large number of lascars were admitted to hospital suffering from subtertian malaria, in various stages and of various types. At Bombay the ship had been anchored half a mile from shore, opposite some building operations, where there was a pool of stagnant water. Many of the ship's men slept on board. There was no report of sickness when the ship set sail, and thereafter those whose duties were not the most strenuous carried on, though for ten days they became less and less fit. Then they began to go down one after another, and eventually the struggle had to be given up. Many of the cases were not recognised on the voyage to be malarial at all, and inquiry showed that the amount of quinine given was not enough to control the fever; there was not enough of it, nor was that in stock of the right kind. A similar occurrence took place on other boats leaving the East at about the same date.

Colonel W. W. **Clemesha** related similar experiences at an earlier date, and said that inquiry of an officer who had suffered from inadequate medical attention on several voyages elicited the reply that the medical officers he sailed with were either very young or very old.

Sir **Malcolm Watson**, in replying on the discussion, said it was not an easy thing to educate in these matters those who provided the money. He often remarked that most of his life had been spent not in fighting the mosquito, but in fighting men who were preventing him from fighting the mosquito. A great source of malaria in Bombay was the continuance of the Hindoo well in private houses, and as long as the hands of the Indian Medical Service were tied in that way, real progress would be impossible. He instanced one estate on which £7000 were spent in these remedial measures, and thereafter more than that amount was saved commercially every year on that particular land. He did not think the distance the mosquito could fly was quite the same question as the control of malaria. It could fly half a mile, but if its breeding places were half a mile from a cantonment, the number of the insects which covered the distance and could thereafter infect would prove to be practically negligible. He had carefully investigated that question. If there should be a taxation for the purposes of the campaign, he was sure it would more than justify itself.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held at Liverpool on Oct. 17th, Prof. **Archibald Donald**, the President, being in the chair.

The **President** opened a discussion on the

Treatment of Mobile Backward Displacements of the Uterus.

He discussed the significance of backward displacement and said that there was a good deal of difference of opinion amongst writers on the subject. The views of various modern writers on the passive congestion theory were set forth. The objections to the congestion theory were that retroversion was *not* the cause of endometritis or chronic metritis. There were some difficulties, he said, in explaining the effects sometimes produced by a pessary. As a result of investigating the symptoms he had arrived at the following conclusions with regard to the condition. (1) Complications were generally the only things that mattered in cases of retroversion. (2) These complications were: (*a*) disordered uterine function; (*b*) increased weight; (*c*) prolapse; (*d*) adhesions. (3) None of these complications were produced by retroversion. (4) In a small proportion of cases an apparently simple retroversion caused local pelvic discomfort and even a certain unexplained effect on the nervous system. (5) The treatment of retroversion was nearly always the treatment of complications. More than 90 per cent. of all the patients sought relief from symptoms which were common to all cases of endometritis and chronic metritis, and for these curetting was nearly always advisable. A series of cases in which curetting had been the only treatment was recorded. Mechanical treatment was carried out (*a*) by pessaries, and (*b*) by fixation or suspension operation. Pessaries seemed of use as a temporary measure in cases of sterility and early pregnancy, and very occasionally in uncomplicated retroversion. In his opinion there were far too many operations for fixing and suspending the uterus. The great majority were unnecessary, and many of them were harmful.

Prof. **Henry Briggs** imagined that a student, ignorant of all gynæcology including its nomenclature, would naturally classify the backwardly-displaced uterus within the pouch of Douglas as a hernia and aim at the strengthening of the deep portion of the pelvic floor and the rectification of the position of the uterus. He said that it was more than singular to have to acknowledge, for example, that the best use of a 3 or 3½-in. ring pessary was advocated 24 years ago by the late Sir William Sinclair (Trans. Obstet. Soc., 1900) in the treatment of the retroflexed gravid uterus; even to-day this advance was not to be found in the obstetrical text-books. Prof. Briggs had not the least doubt that a pessary in situ and frequent urinary catheterism, in gentle and persistent effect, totally out-classed manual reposition.

Dr. G. W. **Fitzgerald** agreed that not all retro-displaced uteri required treatment. Symptoms accompanying the displacement were not necessarily due to it. The important matter was to find what treatment would give the best results. If the curette could show results equal to abdominal section, then the minor treatment was to be preferred. He curetted all cases that produced symptoms, and only rarely found more radical treatment necessary.

Dr. J. E. **Gemmell** said that he was in agreement with Prof. Donald that simple retroversion in single women was symptomless in the majority of cases. In parous women, however, he was of the opinion that this displacement was, in itself, capable of producing a definite train of symptoms. He could not help thinking that there was a world of difference between an organ that was developed in a particular position of version, and one that acquired such a position. The vessels of the former had been congenitally adapted to meet the requirements of the retroverted uterus and could do so smoothly and without embarrassment to the circulation, whilst in cases of acquired retroversion the vessels shared in the displacement and were thereby exposed to abnormal pressures that fell chiefly on the veins and consequently led to back-pressure and congestion. The resulting symptoms *simulated* endometritis and metritis, but he believed they were essentially due to congestion, and he therefore supported the mechanical theory. In his opinion there were three clinical types that demand correction and fixation: (1) In a limited number of congenital cases when the patient complained of sterility, repeated abortions, dysmenorrhœa, or dyspareunia; the type with neurosis and backache was expressly excluded. (2) In obstetric types with the following cardinal signs: a bulky, tender œdematous and often incarcerated (but not fixed) uterus, associated with pain, menorrhagia, leucorrhœa, or dyspareunia. (3) In cases of simple retroversion accompanied with early prolapse in young women of child-bearing age.

Although pessaries and general therapeutic measures were useful adjuncts, and might even be curative in mild cases, he said he wished to limit himself to the surgical treatment by ventrofixation of this condition, and proposed to base his remarks upon 125 cases of simple retroversion that were published in THE LANCET of June 18th, 1921, in collaboration with Mr. Leyland Robinson.

A summary of the results was as follows: 85·6 per cent. cured, 10 per cent. relieved, 4·4 per cent. failures. The principles of ventrofixation, Dr. Gemmell said, were not generally understood, and he believed that this procedure had acquired an unpopular reputation because most gynæcologists had studied the wrong type of operation. The type he and his colleagues had practised was planned to fulfil the three essentials upon which the success of all gynæcological operations depended—namely: (1) Freedom from immediate risks, such as intestinal obstruction; (2) freedom from the risk of interfering adversely with subsequent conception and parturition; (3) ability to relieve symptoms.

The proof that ventrofixation met these requirements was furnished by the following facts: (1) Of upwards of 700 ventrofixation operations performed by him, one patient died from sepsis under circumstances that had nothing to do with the operative procedure. There were no examples whatever of post-operative strangulation of gut. (2) Of 220 cases in which a complete after-history was obtained, 63 women subsequently became pregnant and were safely delivered of 104 children without a single case of dystocia or stillbirth. (3) The effect of ventrofixation on symptoms had already been dealt with (85·6 per cent. cures).

Successful operative technique depended upon three chief factors: the choice of a suitable fixation-point; the prevention of adventitious intraperitoneal bands and holes through which the gut might strangulate; and the achievement of a fibromuscular fixation and not of a peritoneal suspension.

Mr. W. GOUGH agreed that many patients with retro-displacements were symptomless. If a patient were told of the retro-displacement, a vicious circle might be set up. Briefly his practice was: If no symptoms, leave alone; if symptoms were present, he curetted the uterus and replaced it. If the displacement recurred the uterus was replaced and a Hodge pessary inserted for two to three months. If the patient was thereby relieved, nothing further was done, but if her symptoms, &c., returned, then he operated. He had done all types of operation except the absolute fixation and found them all equally successful.

Mr. ROBERT A. HENDRY read the conclusions abstracted from the opening report on the indications for

Surgical Intervention in Retrodeviations of the Uterus Apart from Pregnancy,

presented to the Congress of the Association of French-speaking Gynæcologists and Obstetricians, Geneva, 1923. These were that surgical intervention in uterine deviations, apart from pregnancy, was indicated as follows: (1) In retrodeviations accompanying uterine, ovarian, or parovarian tumours in so far as these tumours did not necessitate the sacrifice of the uterus, the pexy was a complementary operation. (2) In fixed, painful retrodeviations. (3) In fixed retrodeviations accompanied by appendage lesions, unilateral or bilateral, which had resisted medical treatment. If the appendage lesions were such that they required ablation it might be necessary to practise total or subtotal hysterectomy; if such were not the case, the uterine pexy was only a complementary operation. (4) In painful, mobile retrodeviations surgical intervention was only indicated if, when the uterus be replaced, the painful phenomena disappeared. In other cases the pains arose: (*a*) From hysterical and similar states; (*b*) from multiple visceral ptoses. (5) In certain rare cases of obstinate sterility where no other apparent cause could be discovered. (6) In retrodeviations accompanied by repeated abortion where searching examination eliminated the possibility of syphilis. (7) In all cases where, in addition to the retrodeviations, one found a tendency, even if slight, to prolapse with or without perineal lesions. If the perineum were damaged the pexy ought to be preceded by careful vagina-perineal repair. (8) Painless mobile retrodeviations did not require any treatment.

The discussion was then adjourned until the next meeting to be held at Sheffield, on Friday, Nov. 21st.

At the commencement of the meeting Prof. BLAIR BELL described two cases, one of manual perforation of the puerperal uterus, followed by recovery, and the other of thrombo-phlebitis of the right ovarian vein associated with abscesses in the uterine wall.—Mrs. DOBBIN CRAWFORD described a case of primary carcinoma of the vagina.

INFANT HYGIENE, ANCIENT AND MODERN.

Abstract of a Lecture at the Instruction Course for Teachers of Midwives, Midwives' Institute.

DR. H. K. WALLER, lecturing on the above subject in the rooms of the Royal Society of Arts on Oct. 30th, said that one way of approaching it was for enthusiastic welfare workers to enumerate everything modern and call it good, everything ancient as unenlightened and worthless. That clearly would not do. It was difficult for us to picture conditions surrounding infancy in ancient days. Natural selection must have worked surely and ruthlessly in many ways where it was now tempered by more tender social concern. It was certain that throughout all ages there had been no failure in the demand for passionate maternal devotion. The studies of anthropologists showed us that in primitive tribes, where we found the nearest likeness to prehistoric conditions, the task of motherhood was an intricate and exacting profession. So it must always have been, and so it was to-day. For workers in infant welfare there was a stimulus in the fact that of recent years the infant had come in for a wealth of close and scientific study. The speaker traced briefly the history of hospitals, pointing out that hospitals for the wage-earner's wife during the time of childbirth and lying-in antedated by a long while any hospital provision for sick children. One of the oldest children's hospitals in London owed its origin to the revolt of its founder from the rules of the general hospital where he was trained, and where he repeatedly fell foul of the authorities for smuggling children into its wards. Dr. Waller hoped that some surgeon would call attention to the claims of the infant whose mother needed admission to hospital for the treatment of a mammary abscess during the early months of lactation. In many instances breast-nursing could be saved, or re-established after a short interval. But it was still exceedingly difficult to obtain the simultaneous admission of the infant with its mother. The child had to find a hasty shelter, sometimes in most unsuitable quarters, and fell ill, often seriously ill, as the result of a sudden change to unskilled and unsuitable artificial feeding.

It was suggested that we must recognise a certain inherent reluctance on the part of scientists to interest themselves in the habits and needs of the very young child. The human father, like many fathers in the animal world, was somewhat ill-equipped with sympathetic feelings towards his offspring, at least until the awkward inarticulate stage of infancy had been passed. The potential father in the scientist and doctor was, he suggested, not a little responsible for this lack of interest. Dr. Waller went on to say that we could not over-estimate the importance of the craft necessary to be a successful mother or nurse of young children. Good mothers, of which there was happily always a large preponderance, were not often able to impart by means of simple doctrine the essence of their skill. Its acquirement needed beyond all things a patient apprenticeship, and he emphasised the advantage held by women who had themselves to mind children over those who employed others to do it for them. Among the well-to-do the first-born quite often found its mother completely unprepared, devoid of knowledge or practice. In the poor classes the girls were often responsible nurses at the age of 7, and still minding babies when grannies of 70. Neither case was ideal; in the latter the burden was often too heavy. But no one could doubt it frequently produced a degree of skill seldom seen in the former. The lecturer implied no disparagement in mentioning this contrast, but he referred to it because of a somewhat frequent tendency to blame the poor collectively for a lack of skill in upbringing, even a lack of concern for their infants. No infant welfare worker of any experience and powers of observation would subscribe to that view.

Methods of Feeding.

Turning to differences between ancient and modern methods of feeding, the most arresting had been the development of accurate means of artificial feeding. In primitive times lack of success in breast-nursing spelled death for the infant—unless exceptionally it was reared by a foster-mother. Latterly succour by the cow had become so common as scarcely to call for comment. But we were realising the pitfalls in this policy. Despite all the achievements of the chemist, the safety of the successfully breast-fed child was becoming more and more a conviction of physicians. Bottle foods were becoming what they should always have been recognised to be, an invaluable means of saving life in exceptional instances; often a most useful adjunct to, but certainly no general substitute for natural feeding. The superior resistance to illness possessed by the naturally fed baby was too clear to be ignored. Here we were seeing a reversion from modern to ancient customs. The technique of breast-feeding could now be studied and developed in ways that were yielding valuable results. The use of accurate scales is a modern improvement. We had now a means of reducing to measurement what had previously been a matter of guesswork. Nurses and mothers must become proficient in the use of the balances. The speaker held that for the proper understanding of an infant's progress scales which weighed to half an ounce were as necessary as was a clinical thermometer in the supervision of a patient with fever. The objection that the systematic use of scales by a nurse when attending a normal obstetric case would tend to lessen the importance of clinical observation, he considered a poor one. She had at her service an invaluable means of ascertaining that the most important function of the infant was proceeding normally. It was almost her only means of correcting errors of feeding. For the lack of this a great variety of mistakes had crept in and been perpetuated in infant management. In no sense could the means of accurate feeding be said to diminish responsibilities in other directions. As examples of the method details were given of work at an infant clinic. A room was set aside for experimental feeding, and a nurse with special experience placed in charge. To her were referred from the weekly consultations a number of infants, the details of whose progress she recorded. Notes were made of the variation in the yield of the mother's milk at different times of the day, of differences in the yield of the two breasts, of the ease with which the milk was obtained, of the child's behaviour while feeding, of the loss of food sustained by vomiting, and so forth. These notes were returned to the clinic and formed an invaluable aid to the physician when he had to give advice to the mothers.

Referring to dietetic customs at the period of weaning and in the second year of life, Dr. Waller believed there was a danger in imposing on a healthy baby a diet which, from its impressive results in hospital wards when applied to weakly and wasted infants, had crept into the nursery. The essence of this diet was a large preponderance of easily assimilated carbohydrate, and a lavish supply of milk. Here once more it was well worth our while to study the customs of the skilled mothers among the classes where large families prevail. We should find the weanlings' diet far less invalid in type; often indeed it appeared startlingly robust in character. Milk tended to drop out quite early, and the common food of the adult to replace it. Were it not so often spoiled by an undue indulgence in sweets and chocolates, this diet appeared to suit the normal infant well. After commending the excellent modern type of loose-fitting wool clothing which was replacing the cumbrous wrappings of olden days, the importance of safeguarding the infant from catarrhal infections was mentioned. An example was given of an affectionate relative with a pneumococcal abscess in her antrum infecting a new-born child, with all but fatal results. The prevalence of infective catarrh of the nasal passages is one of the grave dangers to which babies are subject. The opinion was expressed that many cases of conjunctivitis in the new-born were secondary to nasal infection, and that their prevention and cure was advanced by suitable disinfection of the infant's nose.

An important aspect of infant management had developed from the recent advances made in our understanding of the baby's psychology and its nervous disorders. The writings of Cameron on this subject contained brilliant and fascinating suggestions and had shown the importance of arranging a calm and suitable environment for the child.

In conclusion Dr. Waller referred to the accusation sometimes made that much in our modern ways of infant supervision received the contempt of the older school. The veterans who boasted that in their hardier and wiser generation they had no need of these things might act as a useful check on methods that were iconoclastic. But were the veterans infallible? Were past generations always so successful? He quoted a memorial in a village church. It seemed to have been designed to commemorate impressively the death of "William, the first-born child of Sir Wm. . . . Bart, who died, poore chylde, Oct. 16th, 1672, aged 11 months." The inscription was cut large in the centre of the marble slab. But beneath it, and above it, and around it in smaller and smaller type as the space diminished, had been added the doleful record of William's brothers and sisters. Richard, John, Henry, Emma, Jocelyn, Mary, and a second William all followed in hapless succession; the 3rd, 4th, 5th, 7th, 8th, 9th and 11th children, their ages ranging from a few weeks to 14 months. There may have been later survivors. But of the first 11, 8 had perished in infancy: a mortality of 72 per cent. The baronet's lady might have profited and the tablet been less crowded had she been able to attend an infant welfare centre such as the twentieth century had seen arise.

Reviews and Notices of Books.

PROCTOLOGY.

Diseases of the Rectum, Anus, and Colon. By SAMUEL GOODWIN GANT, M.D., LL.D., Professor and Chief of Department for Diseases of the Colon, &c., Broad-street Hospital, New York City. London and Philadelphia: W. B. Saunders Company, Ltd. In three volumes. Pp. 543, 545, and 528. £6 6*s*. the set.

Dr. Gant's exhaustive treatise in three volumes on rectal and colonic ailments is before us, but the author himself has passed away, leaving this record of a great achievement. The reader cannot fail to grasp Dr. Gant's technical methods for there are 1138 illustrations to the text, many of them semi-diagrammatic and all of them clear. The chapters dealing with abscess and fistula are well and profusely illustrated, and the author's experience of the latter is evidently exceptional, for he has operated on 5000 patients, which corresponds roughly to the number of cases dealt with at St. Mark's Hospital for Fistula over a period of about 30 years. The division operation is preferred to the excision method and both methods are well discussed; the author, contrary to the accepted view, considers that better results can be obtained by not confining patients to bed after operation.

Dr. Gant prefers the operation of ligature for hæmorrhoids which he conducts under local anæsthesia, and confines his patients to bed for only three or four days. Prior to the use of local anæsthesia he gave preference to the clamp and cautery operation. He believes that when recurrence occurs it follows ligature, clamp, and cautery, and the Whitehead operation with equal frequency, but also states that a permanent cure nearly always follows all three operations. With regard to injection treatment he holds that it is not uniformly curative, nor does it always temporarily arrest bleeding or protrusion, and that it is best suited for moderate-sized bleeding and protruding piles and should never be employed when hæmorrhoids are large, inflamed or ulcerated; he states that "when the injections go wrong the patients suffer a great deal more than if they had undergone the radical treatment."

A high percentage of cures is claimed in operations for cancer of the rectum. In discussing the operative technique of carcinoma of the rectum the author describes a perineal operation in which he brings down the upper end as an anus after removal of the sphincters, and other methods from below in which he retains the sphincters with or without removal of a portion of the sacrum. Those who practise excision from below in this country are for the most part agreed that it is desirable to perform a preliminary colostomy, to remove the rectum entire with its sphincters, and to close the upper cut end, aiming at a thorough removal and a clean wound. When operating through the abdomen the author prefers the abdomino-anal method to the abdomino-perineal, though he resorts to preliminary colostomy in obstructive cases. Few, if any, surgeons in this country now practise the abdomino-anal method in preference to the abdomino-perineal. With the statement that "an artificial anus is unnecessary in the treatment of colonic and sigmoidal cancer unless growth is inoperable" we cannot agree. Diverticulitis, constipation, obstipation, intestinal stasis, and coprostasis occupy a large portion of the third volume; some remarkable operations for their relief are described, as, for example, the method of colopexy on p. 258, and little or no information is given as to their results.

We consider that the book would be improved in a future edition if less heavily weighted with material that has but a remote bearing on the subject—e.g., an account of spina bifida. The chapter on examination of the intestinal tract, again, deals with test-meals, the odour of fæces, the pathology of the urine and blood, and even includes an illustration of a diaphragmatic hernia. The following passage occurs: "Recto-colonic tubercular ulcers and tumours are often mistaken for bacillary, luetic, amœbic, and balantidic colitis, inflammatory growths or gummata, and to clear up the diagnosis in doubtful cases patients may be submitted to a tuberculin test." The author is convinced that splitting the anal canal "including division of the sphincters, fibres of the levator ani muscle . . . . by a bold stroke with the author's razor blade bistoury well up into the rectum," is the best operation for fissure, and by this method he has cured over 1000 cases. Rectal surgeons in this country would shrink from this heroic procedure. Indeed, throughout the book we find ourselves in frequent conflict with the author's pathological views and methods of treatment. But it is of great interest to learn the views of our distinguished colleagues in America, and we recommend a study of the book to proctologists in this country as a stimulating exercise.

A Treatise on the Diseases and Injuries of the Rectum, Anus, and Pelvic Colon. By J. RAWSON PENNINGTON, M.D., F.A.C.S., Proctologist to Columbus Hospital, Veteran's Hospital No. 30, and U.S. Marine Hospital. Philadelphia: P. Blakiston's Son and Co. 1923. With two plates and 677 illustrations. Pp. 933.

THE author dedicates this volume to the memory of some of his early teachers, Herbert Allingham, Alfred Cooper, David Goodsall, Charles Boyd Kelsey, and the volume contains portraits of many distinguished surgeons. Some idea of the scope of this work may be gathered from the fact that 46 pages and a like number of illustrations are devoted to the anatomy of the rectum, which is described in an attractive manner. Imperforate anus is well discussed, and it is interesting to note that in a summary of 223 cases operated on by various methods and collected from various sources only 16 reached adolescence and but 13 passed the adult age; it must be presumed that most of these were afflicted with either a colostomy or an incontinent anus. Gunshot wounds of the rectum are considered in the light of experience gained in the late war; this chapter might be improved in a future edition if gunshot wounds involving the rectum were considered under two headings: (1) those which penetrate the peritoneal cavity, (2) those associated with buttock wounds without involvement of the peritoneal cavity. We agree with the author when he advocates "excision" of fistula in ano, but it should be made clear that the method is only suitable for a limited number of cases; treatment by the ancient method of "string constriction" should not, we think, be encouraged. Mr. Pennington has come to the conclusion that the best operation for hæmorrhoids is the "open" method, which, he states, "consists in excising sufficient of the covering of the varicosities, so when the pathologic condition is removed the operated field will resume its normal state and relation to the contiguous parts." It is not clear from the text that the "open" method is an improvement on the present-day method of ligature and excision. We do not agree that "there is considerable risk of secondary hæmorrhage" after clamp and cautery. It is satisfactory to see that adenomyomata involving the rectum are referred to. These tumours have in the past, no doubt, often been mistaken for carcinomata, and it is important that they should be recognised, because they can be cured, in the early stages at any rate, by radium, and a severe operation is thus avoided. In discussing the operative technique of carcinoma the author describes various methods of excision without committing himself to a definite preference. The abdomino-perineal method is described but not the modern perineal excision after preliminary colostomy by the method used at St. Mark's Hospital, which now has so many adherents in this country. Diseases of the pelvic colon are considered separately at the end of the volume and are well discussed, especially megacolon and diverticulitis. A complete bibliography is attached to each chapter, the value of which is increased by an index of the names of the authors referred to (about 1300) with page references.

In the interesting historical introduction the royal bistoury used to operate on Louis XIV., in 1687, is depicted. The fees for the surgeon and his assistants on this occasion were truly royal, amounting to $73,000.

As a work of reference this book will prove of great value to proctologists, and as a text-book for the practitioner it should be more than sufficient. It is well printed and profusely illustrated.

OPERATIVE DENTAL SURGERY.

Second edition. By J. B. PARFITT, L.R.C.P., M.R.C.S., L.D.S., Dental Surgeon and late Lecturer on Operative Dental Surgery to the Dental School of Guy's Hospital. London: Edward Arnold. With illustrations. Pp. 342. 21*s*.

MUCH has been written on the subject of operative dentistry, but we do not know of any other book which bears so authentic a touch as this. It is practical in the sense that every page is evidently derived from personal experience. There is no section dragged in for the sake of completeness and obviously written up for the occasion. The chief changes in this edition are to be found in the chapters on cavity preparation and pain saving. The section on cavity preparation is extremely good, and covers the ground very completely. The chapter on pain saving contains some useful matter, but also reveals the gap in dental technique. Painless dentistry is not yet a possibility, in spite of various much-lauded methods. Mr. Parfitt advocates the use of local anæsthesia for abolishing sensation in conservative dentistry. Often it succeeds, yet there are cases in which it is unavailing. In some cases a satisfactory anæsthesia may be produced in this way, but an obstinate tenderness of the tooth may follow, which rather discounts the patient's gratitude for a painless operation. Mr. Parfitt rightly lays stress on the evil of using too much adrenalin. There can be no doubt that many of the toxic symptoms which occasionally follow the use of novocaine are really due to the adrenalin incorporated in the tablets. Perhaps the most suggestive chapter in the book is that on "Infection and Cleanliness." It is quite short, but every word tells. So much craftmanship enters into dental operations that there is a tendency to view dentistry from that standpoint and to overlook the fact that operative procedures may open up many loopholes for infection of the dental tissues. The rigid standards of cleanliness essential in surgery are not practicable in dentistry, and some compromise is necessary. The technique which Mr. Parfitt has elaborated in this book represents a practical possibility open to every dentist practising under average conditions. It may not be absolutely watertight, but there can be no doubt that its adoption would eliminate many cases of dental infection which have supervened upon operative measures upon the teeth.

Far Eastern Association of Tropical Medicine.

Transactions of the Fifth Biennial Congress, held at Singapore, 1923. By A. L. Hoops, M.D., and J. W. Scharff, M.B. London: John Bale, Sons and Danielsson, Ltd. 1924. Pp. 974. 40*s.*

Some idea of the activities of tropical workers in the Far East may be obtained from a perusal of an informative and imposing volume edited by Dr. A. L. Hoops, P.M.O., Straits Settlements, and his able assistant, Dr. J. W. Scharff, who also acted as the hon. secretary of the congress. The book is handsomely got up, and contains information which must have required a considerable amount of energy to collect and still greater patience to edit, as it comprises some 78 papers. The writers of these papers, which were read at the congress, hailed from China, Japan, Formosa, the Dutch East Indies, French Indo-China, the Philippines, Borneo, as well as from India, Hong-Kong, Shanghai, the Malay States, and Straits Settlements. The cosmopolitan character of the congress well bears out the theme of the introductory address of welcome by the Governor of the Straits Settlements, that in the theatre and laboratory "there is neither East nor West, border nor breed nor birth." In his presidential address on the prevention of disease in the tropics Dr. Hoops referred to the activities of previous congresses and the benefits which had accrued therefrom. A gap of eight years in the meetings had resulted from the late war.

The opening address on malaria, by Sir Malcolm Watson, is followed by a number of papers by Wellington, of Negri Sembilan; by S. C. Howard and V. A. Stookes, on malaria control on rubber estates in Malaya and in Sarawak respectively; E. W. Walch writes upon malarial epidemics caused by *Anopheles sinensis;* W. B. Doovenbros, on sanitation on rubber estates in Sumatra. M. Koidzumi describes the anophelines of Formosa. S. R. Christophers, the well-known authority on malaria, has a thoughtful article on measurement of the enlarged spleen, and Yas Kuno, of Mukden, discusses the same subject. A paper of special merit on the treatment of dementia paralytica by malaria is by F. H. Van Loon and Dr. L. Kirschner, of Batavia. From this it appears that the disease is relatively uncommon, and that native patients usually are absolutely immune to benign tertian malaria. The aspect of malaria to mental disease and tropical neuroses (amok and latah) peculiar to Malaya, the latter by R. D. Fitzgerald and Sir D. J. Galloway, deserve especial mention. A. T. Stanton discusses measures for control of beri-beri in the Far East. Dr. Wu Lien-Teh has much to tell of plague in wild rodents and the tarabagan—a fine record of original work.

There are numerous contributions on dysentery, the pseudo-typhus of Sumatra, the treatment of leprosy, spirochætosis icterohæmorrhagica, examination of the liver by X rays, &c. Enough has been said to demonstrate the value of the work accomplished. Every practitioner in the tropics would do well to keep it on his shelf.

The Transpiration Stream.

By Henry H. Dixon, D.Sc., F.R.S., Professor of Botany in the University of Dublin. London: University of London Press, Ltd. 1924. Pp. 80. 2*s.* 6*d.*

This little book contains a reprint of three lectures on the transpiration stream delivered, at the invitation of the Senate, before the University of London; in it the author summarises the present position of the cohesion theory of the ascent of sap. To those readers who are unfamiliar with his earlier publications on this subject the present account will hardly be sufficiently explicit, but the advanced reader will find here reference to recent work on the subject, together with Prof. Dixon's views on the significance and interpretation of this work.

Ear, Nose, and Throat Nursing.

By J. Hardie Neil, M.B. (N.Z.), M.R.C.S. Eng., Ear, Nose, and Throat Surgeon, Auckland Hospital, New Zealand. London: H. K. Lewis; Auckland: Clark and Matteson. Pp. 31.

Mr. Hardie Neil has written these practical notes for the benefit of senior nurses, and as a guide to the general routine of the department which may, in parts, be of assistance to resident medical officers. The book is divided into sections on the ear, nose, pharynx, œsophagus, and larynx, each of which begins with a short description of the anatomy, and continues with an account of examination methods, of the common forms of disease, and of the more important operations. Nurses are told what complications to expect, what to do in cases of emergency, and what instruments to prepare for operation. There are some useful anatomical drawings and good illustrations of the patient's position for examination and operation. Apart from a few small slips, the little book is well and carefully written, and should be very useful within its size and scope.

The Care of the Baby.

Seventh edition. By J. P. Crozer Griffith, M.D., Professor of Pædiatrics in the University of Pennsylvania. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 478. 12*s.* 6*d.*

This book, described as a manual for mothers and nurses, contains a number of practical directions for the management of infants and children in health and in disease. It has naturally undergone a considerable amount of revision since its first publication in 1895, and the present edition, the seventh, has been brought well abreast of the teaching of to-day. Among the formidable array of volumes written for the guidance of mothers, Prof. Crozer Griffith's book takes an honourable place and well deserves its sustained popularity. It is very much more readable than are most books covering the wide range of topics connected with the care of infants and children, partly, no doubt, because it is not broken up into short sections. The hygiene of pregnancy is discussed in the first chapter of the book, succeeding chapters being devoted to details of the infant's growth, toilet, clothes, food, sleep, exercise, and training. The last section of the book, consisting of 150 pages, is devoted to the sick baby; this section, which is particularly well done, has been written especially for those mothers who are unable to obtain medical aid in an emergency. An appendix has been provided containing various recipes for food and medicine, as well as directions for the preparation of different kinds of baths, poultices, disinfectants, and so on. These are given in sufficient detail to enable any intelligent woman to follow them with ease. In a few instances the author's teaching is at variance with that of most pædiatrists in this country, such as the statement that during the first three months of life seven to ten feedings should be given in the 24 hours, including one or two night-feeds; or the advice that a meal should be given between 9 and 10 P.M. to a child of 12 to 18 months. These are small blemishes, and the book may safely be recommended to all who have the care of infants.

What Every Mother Should Know. Second edition. By CHARLES GILMORE KERLEY, M.D. New York: Paul B. Hoebner. Pp. 103. $0.50.

THIS little book is designed by its author to serve as a ready reference for busy mothers with regard to the care of their children, its purpose being "to place in the hands of the mother of moderate means concise, readily understood, and practical instruction." The teaching given in the 13 chapters of the book is simple and elementary, and most of the questions are dealt with on which a mother is likely to need instruction. The only points on which English physicians would be likely to differ from the author are the advocacy of a night-feeding during the first three months of life, and the undue importance given to constipation—i.e., infrequent stools—in a breast-fed baby. Where a breast-fed infant is steadily gaining weight and the motions passed are normal in colour and consistence, the actual number of stools passed in the 24 hours really matters little. A useful feature of the book is the interleaving with blank pages for notes.

AN OUTLINE OF MEDICAL TREATMENT.

Grundriss der Klinischen Therapie Innerer Krankheiten. Zweite Auflage. Von. Prof. Dr. GEORG KLEMPERER, Direktor der IV. medizinischen Universitatsklinik; arztl. Director des Städt. Krankenhauses Moabit in Berlin. Unter Mitwirkung von Oberarzt Dr. L. DUNNER. Berlin: Urban and Schwarzenberg. 1924. Pp. 268. Sch. fr.6.25.

THAT a second edition of this book has already been published is a tribute to its popularity in its country of origin. It is a short treatise on clinical therapeutics and is doubtless of value to the busy German practitioner. To the English reader its only appeal can be as an index of accepted common methods in a foreign country. An appendix gives a list of useful German prescriptions.

JOURNALS.

BIOCHEMICAL JOURNAL. Vol. XVIII., No. 5.—The first paper, by H. W. Southgate, on the Dietetic Value of Barley, Malt, and Malted Liquors as determined by their Vitamine Content, will prove of interest to those engaged in liquor controversies, since it is shown that, although barley and malt contain large quantities of water-soluble B, beer possesses very little of this vitamin.—The mechanism by which a dead fœtus is removed in utero has been studied by C. N. H. Long and A. S. Parkes. In their paper, entitled On the Nature of Fœtal Re-Absorption experiments, are described from which it would appear that the fœtus is dissolved by its own autolytic enzymes, and that the process is not one of putrefaction, nor are the enzymes derived from the uterus.—A series of papers deal with methods. These include: A Colorimetric Method for the Direct Estimation of Ammonia in Urine, by A. P. Orr. The method depends on the colour produced between ammonia and phenol in the presence of sodium hypochlorite.—Estimation of Sugar in the Blood, by E. G. B. Calvert. The author replies to criticisms on his original modification of the Folin-Wu method, and describes further alterations which obviate the necessity of a torsion balance.—A Method for the Estimation of Iron in Small Quantities in Biological Substances, by M. M. Murray. The iron is estimated, after ashing, by means of $N/80$ $KMnO_4$. The introduction of a reductor, composed of cadmiumised zinc, is the original part of the method.—Note on the Estimation of Uric Acid by the Hopkins-Folin Method, by R. C. Garry. The author describes an ingenious method of performing a "blank" control, and other methods designed to overcome the difficulty of appreciating the end-point.—Method of Estimating Minute Amounts of Iodine in Biological Material, by F. C. Kelly and A. D. Husband. This paper contains a brief review of the methods in use at present, together with the description of a modified technique.—A Colorimetric Method for the Estimation of Sugar in Blood, by F. J. Paton. The author suggests that the colour given by glucose and 3–5 dinitrosalicylic acid as the basis for the new technique.—A Critical Study of the Methods of Estimating Cholesterol and its Esters in Tissues, Part II., by J. A. Gardner and F. W. Fox. This paper deals with possible fallacies and the mode of extraction of cholesterol from the tissues.—Perhaps one of the most interesting communications is that by P. T. Herring, J. C. Irvine, and J. J. R. Macleod, called the Efficiency of Various Sugars and their Derivatives in Relieving the Symptoms caused by Insulin in Mice. The experimental work on the animals was performed by Prof. Herring, whilst the sugars employed were made and purified by Prof. Irvine. The results are commented upon by Prof. Macleod. There can be no doubt that this is one of the most exact pieces of chemical research performed on the subject. The general conclusions arrived at were that only those sugars easily fermented by yeast are most efficient in the treatment of convulsions—i.e., glucose and mannose. Fructose is nothing like so efficient, and acts in a temporary manner. Galactose is even worse than fructose. Maltose is slow in action, whilst lactose is without action. Various other substitution compounds were also tried.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XXII.—"LOCK-UP" SURGERIES.

BY HAROLD S. BEADLES, M.R.C.S. ENG.,
CHAIRMAN OF INSURANCE COMMITTEE AND SECRETARY OF PANEL COMMITTEE, WEST HAM.

THE system of medical attendance and treatment under the National Health Insurance Acts has of recent years brought prominently before public notice the question of the provision of what are generally known as "lock-up" surgeries. Of course, the use by medical practitioners of these "lock-up" or "branch" surgeries prevailed long before the Insurance Acts were thought of. They owed their origin primarily to the recognition by practitioners of the desirability of providing facilities whereby their personal services could, at specific times in the day or at call, be brought nearer to the homes of their patients.

Rural Needs.

In the case of sparsely populated and extensive rural areas, where the inhabitants live in villages and isolated hamlets, there is no doubt whatever that the existence of a lock-up or branch surgery has been, and is still, a necessity, and can be said to furnish the only satisfactory arrangement. Resident medical practitioners must necessarily be few and far between in such areas; and those who use the surgeries have to spend much time in travel from their homes to their patients. They must, of course, reside as near as possible to the centre of their practices so as to render themselves more readily available day and night to the greater number of their patients. Consequently some form of non-residential provision for the more distant areas of these practices becomes essential. This applies with equal force to the private and insurance sides of general medical practice.

With the present-day extension of the telephone service, communication between such surgeries and the doctors' private houses has become much easier. Delay in establishing communication with a practitioner in emergency must inevitably result in danger to the patient and dissatisfaction to the doctor himself. A practitioner having voluntarily established a lock-up or branch surgery imposes upon himself, therefore, the moral obligation to provide adequate attendance and treatment thereat and therefrom. While it is conceivable that the establishment of a lock-up or branch surgery in or near an outlying village would reduce unduly the extent of the practice available to a doctor resident in that village, with the consequent risk of making it impossible for the resident practitioner to derive an adequate living from the remaining portion of the population, nevertheless action for the prohibition of such an establishment should not be lightly undertaken, because it might tend to restrict in some degree free choice of practitioner by patients, and also to militate against the best interests of the medical service of the area generally.

This phase of the subject is recognised in National Health Insurance practice, as is evident from the following reference thereto in the mileage schemes adopted by some insurance committees:—

> "Provided that, in cases where the practitioner (or any partner of his) has a surgery which is nearer to another practitioner's residence than it is to his own, the credit (i.e., for mileage grant) shall be based on the distance from that surgery to the residence of the insured person."

In other words, this means that if practitioners in rural areas open lock-up or branch surgeries in outlying districts where other practitioners reside, they cannot always expect to receive credits for mileage measured from their own residences to the homes of patients residing within the vicinity of such surgeries.

Urban Needs.

In the case of more thickly populated urban areas and towns the need for the lock-up surgery system is not so apparent, at least from the point of view of the public. Generally speaking, the residences of practitioners in such areas are so placed as to be within a mile or so of their farthest patients and the number of practitioners resident within a small area is much greater. The incentive to establish a lock-up surgery in such an area cannot therefore be regarded on the same plane as in the case of rural practice. Here the convenience of the patients does not appear to be the primary consideration. Extension of practice, the desire for improved residential environment, the dearth of residential accommodation in building up a new practice—these would appear to be the governing factors.

Now while the desire to extend a practice is quite legitimate in its way, it should not be permitted to dominate the best interests of the patients needing advice and treatment and of the other practitioners resident in the district. But the wish for improved residential surroundings, especially in a number of areas of this country, is perfectly comprehensible. The extraordinary thing is that some of the urban areas should enjoy a resident practitioner at all. Persons with the nurture and training of a physician need considerable courage in addition to their other gifts in order to spend the best years of their lives in the squalid surroundings presented by some of these districts. The prospect for the wife and family of such a practitioner is far from alluring. The charge has been levied that, the Insurance Acts having provided a well-assured income in respect of the treatment of the poorer classes, practitioners and their families have migrated to more salubrious surroundings during their hours of rest and recreation. If there were any truth in this charge the difficulty has been well met by the action of the responsible authorities under powers conferred by the provisions dealing with surgery accommodation in the Medical Benefit Regulations. Yet granting the conditions of some of our town areas practitioners can hardly be blamed for taking the earliest opportunity of improving their lot in respect of living accommodation and environment.

Drawbacks and Safeguards.

The establishment of a lock-up surgery by a medical man or woman commencing practice in an urban or town district is, however, least worthy of approval at the present time, notwithstanding the prevailing shortage of housing accommodation, and should not be recognised for insurance purposes unless the practitioner lives within easy distance of the surgery provided, and unless his services at and from the surgery are as readily available at all times as they would be if it were situated at his place of permanent residence.

Whatever the motive for the inauguration of a lock-up surgery may be, and whether it be intended for the use of private patients or insured persons, such an establishment cannot serve the best interests of either the medical profession or of the sick public unless adequate facilities are provided thereat for calls upon the practitioner's service at any time of the day or night by the employment of a caretaker and the provision of a telephone. Efficient safeguards must also be effected against the possibility of the other practitioners resident in the district being burdened unduly with the absent practitioner's responsibilities.

Some of the less friendly critics of the State insurance medical service have, from time to time, pointed to lock-up surgeries as evidence of the alleged unsatisfactory provision made for the medical needs of the insured members of the community. In a few cases such criticism may be justified in relation to a very small number of insured persons, but no sweeping indictment of the service on this account can be substantiated. It may truthfully be said that the establishment of the service has rendered obligatory upon all the contracting practitioners the provision of many of the good features which existed in well-conducted private practices in pre-insurance days. With the passage of time the administrators of the Act have had opportunities for comparison, from which has resulted the endeavour gradually to raise by legislation the standard in every direction, including surgery accommodation.

In the last issue of the terms and conditions of insurance medical service it is laid down that a practitioner is required to provide proper and sufficient surgery and waiting-room accommodation for his patients, having regard to the circumstances of his practice. The form of words used here is very wide in its application and embraces the obligation to provide, if necessary, a lock-up or branch surgery, equally with the abandonment of such a surgery if, in the opinion of the authorities, circumstances demand it. It is known that some practitioners own branch surgeries which they work wholly through permanent assistants. Rarely, if ever, do they put in an appearance or answer calls from patients accustomed to use such surgeries in the belief that their treatment is under the supervision of the principals whose names appear on the door-plates. These may be characterised as among the worst forms of lock-up surgeries and might well, in certain conditions, give rise to the suggestion of practising under misrepresentation.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 8, 1924.

DOCTRINAIRISM IN MEDICINE.

The trial of Rex *v.* Hadwen has been one of profound interest to the public and to the medical profession, but its significance can only be really understood if the issues are made clear. There are temptations to regard the case as an attempt to persecute, in accordance with an extreme doctrinairism, a qualified practitioner for holding unorthodox opinions; it really was an inquiry into certain circumstances in the clinical conduct of a case, to decide whether there had been negligence, and, if so, whether that negligence amounted to manslaughter. At the Gloucester Assizes Dr. W. R. Hadwen was acquitted by a jury on a charge of manslaughter arising out of the death of a patient. Such a charge is rarely brought against a medical practitioner, and it is for every man and woman to consider the circumstances under which such a charge was brought and what is the sequence of events when such a charge is heard. To enable them to do so a verbatim report of the evidence and of Mr. Justice Lush's summing-up is given in a Special Supplement to this issue of The Lancet. Dr. Hadwen was acquitted of manslaughter. It is necessary to look closely at the implications of his acquittal.

Dr. Hadwen was acquitted because, holding the views that he did, his conduct did not amount to wicked negligence. It was not enough for the prosecution even to prove that, had the doctor been careful, the patient would have had a chance of survival. The jury were directed that only if negligence were of so gross a character as to make it wicked negligence would it amount to manslaughter. The verdict did not decide whether the child did or did not die of diphtheria. The jury were not asked to formulate a conclusion as to this, which is only one of the many points on which medical men will like to form their own conclusions after a careful study of the whole of the evidence. The jury were not asked to say whether Dr. Hadwen's views on the treatment of diphtheria were those of a wise medical man or not. "You are not here," said Mr. Justice Lush to the jury, "as a tribunal to criticise his views." It will be seen that the prosecution set themselves a difficult task in endeavouring to secure Dr. Hadwen's conviction upon an indictment for manslaughter, however undesirable the treatment of his patient might appear to other members of his profession. The jury were, in fact, not asked to comment on the scientific issues which were at stake or to assess the danger to society of a medical man who holds the views revealed at the trial, in the light of scientific knowledge as it stands to-day.

We are still at liberty to do both these things. Belief in the value of diphtheria antitoxin is universal among bacteriologists and to the medical profession as a whole the evidence is conclusive that antitoxin saves life in cases of diphtheria in direct proportion to the earliness at which it is administered. Medical officers in charge of fever hospitals hold that antitoxin administered early would have saved the lives of a large proportion of diphtheritic cases admitted moribund to these hospitals. Dr. Hadwen thinks otherwise. He is bound by views expressed in public that diphtheria comes and goes quite independently of antitoxin and that the only change which antitoxin can produce in any case is for the worse. In 1917, writing of the Registrar-General's statistics, he remarked that in spite of the rigorous antitoxin inoculation for the last twenty years, the "bacteriological necromancers" had failed to bring down the death-rate to what it was twenty years before the date in question. We are not here concerned with Dr. Hadwen's use of figures, but only with the opinion he holds on the value of antitoxin. Opinion in regard to methods of treatment founded on theories of bacterial causation is, doubtless, not uniform throughout the medical profession. In therapeutics, as in politics, there is an extreme Right which clings to time-hallowed views and an extreme Left which may be provocatively in advance of ordinary practice. Both extremes lay themselves open to charges of malpraxis; the Right, in that they have not applied to a sick person the knowledge which medical science claims to have at its disposal; the Left, in that they are interfering with the liberty of the subject by employing protective methods not universally regarded as advisable. It will be recognised that the doctor is susceptible in ordinary degree to human frailty and human prejudice, and no one demands of an elderly practitioner the same degree of physical activity or mental alertness that is shown by his junior—wants which may be compensated by maturer judgment and better knowledge of the world. But where a medical practitioner's view in a vital question comes into conflict with that of the vast majority of his professional brethren, he has the alternatives of sinking his own judgment or of having his conduct reviewed in open court.

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THE PROPHYLAXIS OF DIPHTHERIA.

All who are interested in the question of the prophylaxis of diphtheria and its application on a large scale in this country will find much useful information on the subject in the admirable report to the League of Nations by Dr. Louis Van Boeckel,[1] the Director of the Laboratory of the Belgian Health Department. After an exhaustive summary of the history, technique, significance, and practical applications of the Schick test, the author comes to the conclusion that "it is a sure and practical method of determining susceptibility to diphtheria." Admitting that the use of the toxin-antitoxin mixtures may not form the ideal method of protection, and that possibly in the future they may be supplanted by some other kind of anti-diphtherial vaccine, he considers they confer an immunity lasting for at least seven years, and in all probability for life. Of the general safety of the method there appears to be no doubt, but the report rightly emphasises the necessity of some form of State control for the standardisation of the toxin used for the test and of the mixtures employed for immunisation. The Regulations of the U.S. Public Health Service are "designed not only to compel the manufacturers to supply a product which fulfils all the desired conditions, but also to prevent any risk of infection or accidental intoxication." It was inevitable that the report should be based mainly on the remarkable work of Dr. W. H. Park and Dr. A. Zingher in New York. It is surely no mere coincidence that the city in which immunisation has been most thoroughly and systematically carried out should of all the great American cities show the most striking and steady fall in its diphtheria mortality-rate. To quote an American medical contemporary[2]: "The figures now available are a challenge to every city in the United States" (and, may we add, in Great Britain), "which has a diphtheria mortality-rate higher than the strikingly low rate of New York City."

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[1] The Prophylaxis of Diphtheria. League of Nations. C. 169. M. 45. 1924. III.

The success in New York has been synchronous with an intensive and unremitting campaign carried on for seven years and resulting in the testing and immunisation of hundreds of thousands of children. Beside this great achievement the results obtained in Edinburgh by Dr. W. Robertson and Dr. W. T. Benson, and reported on another page of our present issue, may seem very insignificant, but, so far as we are aware, they represent the first serious attempt in this country to protect all the school-children of a large city against diphtheria. As was only to be expected, many difficulties were encountered, but they have for the most part been surmounted satisfactorily. It is most gratifying to learn that it was possible to obtain parental consent for the testing and protection of 43·3 per cent. of the children, and that in the case of a later visit to a particular school consent was given to immunise 50 per cent. of the remainder. Such an experience goes far to prove that the parents were satisfied that the children inoculated on the first occasion had not suffered in any way from the process. There is little reason, indeed, to believe that severe reactions or inflamed arms are common in children of school age, and the fact that in the better-class fee-paying schools absenteeism as the result of inoculation was as low as from 2 to 3 per cent. suggests that the higher percentage in the lower class schools was not really necessary. Dr. Benson, as regards his methods of propaganda, his certificates of immunity, and his insistence on the necessity of enlisting the sympathy and assistance of the teaching staff of the schools concerned, has followed closely the methods of Dr. Zingher, and we can only hope that his efforts will be rewarded with equally striking results. Some time must necessarily elapse before a definite opinion can be given regarding the success of such a scheme, as the acquiring of active immunity is, at best, a slow process. The Edinburgh results, however, so far as they go, seem very encouraging, and of one group of susceptible children no fewer than 91·3 per cent. were found to be immune within six months of inoculation. The important fact in the meantime, however, is that Drs. Robertson and Benson have clearly demonstrated that, in spite of the opposition of the prejudiced and ignorant, a large proportion of parents in this country will be found not only willing but eager to permit the application of this method of protection for their children, and that the difficulties inseparable from such a considerable undertaking can be overcome by judicious propaganda, by the tact and enthusiasm of those in charge of the work, and by the intelligent coöperation of the school authorities.

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HEALTH AT SEA.

Seafaring has always been one of the staple industries of the British race, and after the initial discomforts are surmounted the life is held to be a healthy one. How far this impression is justified by facts cannot be stated with certainty. The Ministry of Health, which keeps a watchful eye on the bodily welfare of the citizen plying his trade above or below dry land and on the inland waterways, has little time to spare for those whose business is on the high seas. The removal a year ago of the seaman's disability in regard to treatment for venereal disease was due to private enterprise, although the Ministry was sympathetic. The Navy has a well-organised medical staff to record and analyse the incidence of disease and death on vessels of war, but mortality and morbidity in the Mercantile Marine are little more than items among the varied returns of damaged goods and broken ships compiled by the Board of Trade. While the Board of Trade is concerned with the widest aspect of welfare at sea and has under constant consideration the conditions under which the merchant seaman lives, it apparently attaches little importance as to how he dies. Yet the collection of accurate vital statistics and their proper interpretation is one of the first essentials towards establishing satisfactory living conditions. For the Mercantile Marine such returns are not available, and it is in this connexion that Fleet Surgeon W. E. Home criticises elsewhere in our columns the supervision of health at sea exercised by the Board of Trade. He complains that no figures are given from which the death-rates might be calculated with even approximate accuracy, and further that the listed causes of death bear evidence of lay origin. These criticisms may be just, but to remedy the shortcomings is no simple matter. In the first place, as Dr. Home himself points out, the total number of men serving in the Mercantile Marine can be calculated only very roughly on the basis of the numbers forming the first crews of vessels during the year, and very few of those who follow the sea spend an entire year on a ship. Greater accuracy might result by taking the total number of "crew-days" run in the Mercantile Marine in one year, and then dividing the number by 365. This would give the number of hypothetical years passed in the service by crews, and from these the annual rate of mortality could be determined. In the second place, the difficulty in calculating the disease and mortality-rates among seamen lies in the fact that only about 1000 ships among the 8000 on the British Register are required by law to carry a qualified surgeon. Thus, while on the lines indicated the total mortality might be calculated with a degree of accuracy, the question of cause of death will depend on the diagnoses of the masters of the ships in the greater proportion of cases. The ship's captain may possess an excellent working knowledge of the medicine-chest, but his diagnosis is not likely to be of value from a statistical point of view. In this connexion it would seem advisable that the Board of Trade should differentiate between the reports submitted from ships which carry a surgeon and ships where medical questions are decided by a layman. While Dr. Home's figures indicate that the mortality among merchant seamen is higher than that in the Navy or in the Army, it must be pointed out that, compared with the mortality per 1000 of males in England and Wales between the ages of 20 and 55, it is low. For the Mercantile Marine the rate is 2·08 per 1000; for the latter it is 7·9 per 1000. Nearly all those who sail the seas are medically examined before a voyage, and there is no question that the provision of more accurate and fuller statistics would be of the greatest value as a basis for improving the health of the merchant service. We ought to know, for example, the effect of the different routes traversed by ships. Some of these are reputed healthy, such as the North and South Atlantic routes, and some unhealthy, as the Suez route, and the West and East African coastal routes. The Board of Trade might enlist the coöperation of the Ministry of Health.

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[2] Journal of the American Medical Association, Sept. 20th, 1924.

GENERAL MEDICAL COUNCIL ELECTION.

NOMINATIONS of Direct Representatives of the medical profession to the General Medical Council were in the hands of the respective registrars on Thursday last, when the list was closed. As far as is known at the time we go to press the candidates are as follow :—For England and Wales : R. A. Bolam, Newcastle-on-Tyne ; H. B. Brackenbury, London ; J. Brown, Blackpool ; H. J. Cardale, London ; H. F. Devis, Downend, near Bristol ; R. Fielding-Ould, London ; E. A. Gregg, London ; J. A. Macdonald, Taunton ; Sir T. J. Verrall, Bath ; F. H. Westmacott, Manchester ; for Scotland, Sir Norman Walker, Edinburgh ; for Ireland, Leonard Kidd. Elections occurring as they do only at intervals of five years, it may not be superfluous to point out how and when this method of representation arose. It was in 1886 that the legislature recognised the reasonableness of giving to the practitioners of the country, whose fees maintain the Council, whose education is regulated by it, and whose names may eventually be erased by it from the Register, direct representation upon that Council. The Medical Act of that year directed that three representatives were to be appointed by registered practitioners in England and Wales, one by Scotland, and one by Ireland. In 1909 the G.M.C. recommended to the Privy Council that there should be a fourth representative for England, and at the next election in 1911 a fourth was added. At the elections of 1911 and 1919—the long interval being due to postponement on account of the war—the nominees of the British Medical Association were returned by large majorities. Under the original Act of 1858, the only members of the Council outside the representatives of licensing bodies consisted of six Crown nominees—four for England, one each for Scotland and Ireland. In 1886 the number of English Crown nominees was reduced to three. The first Crown nominees were :—For England : Sir James Clark, Sir Charles Hastings, (Sir) William Lawrence, and Thomas Pridgin Teale ; for Scotland, Sir Robert Christison ; and for Ireland, William Stokes. Since that time there has been a growing tendency for the Crown to take its nominees from the public medical services. Sir John Simon's appointment in 1876 has been followed by that of his successors in the position of chief medical officer to the Local Government Board or, more recently, the Ministry of Health. The same principle is now being observed in respect of Scotland and Ireland. The other Crown appointments in England have also taken on something of a representative character, one being chairman of the Central Midwives Board, the other connected with dentistry, until this became unnecessary in 1921 when the Dentists Act directed the appointment by the Privy Council of three dentists as additional members of the Council. It is manifestly useful that each of the great public services should have its authoritative exponent on the Council, while it is equally desirable that the practising members of the profession should have their mouthpiece in the Council chamber. The point of view of the practitioner is not necessarily identical with that of the colleges and universities, which commonly send consultants or members of the professorial staff to represent them. In point of fact, however, unanimity on questions of medical education, registration, and discipline has been so complete that it would be difficult for an ordinary onlooker to tell which member of the Council stood for the teaching bodies and which for the practitioners.

A LIST of the medical men who stood successfully for Parliament at the recent General Election will be seen on p. 987. We hope later to add the name of Sir George Berry to this list, and extend meanwhile our congratulations to the 11 medical Members of Parliament, who will no doubt again form themselves into a Parliamentary Medical Committee to watch over the interests of medicine for the benefit of the nation.

Annotations.

"Ne quid nimis."

MENTAL HOSPITAL ADMINISTRATION.

THE tenth annual report [1] of the Board of Control appears at a time when its intrinsic interest is greatly heightened by the evidence being given before the Royal Commission. The report deals with the year 1923 and makes observations on a number of points in connexion with lunacy administration to which reference has been made in our periodic survey of the Mental Hospitals Service. One of the chief anxieties of the Board, as its chairman, Sir Frederick Willis, assured the Commission, relates to the coming necessity of additional accommodation. The total insane population on Jan. 1st last amounted to 130,334, an increment for the year of 4055, which is slightly greater than the steady increase which has now been going on for several years. The number of vacant beds has been reduced by one-half, and at its present figure of 4754, allowing for inequalities of distribution, this means that overcrowding must already exist in some asylums, as indeed is actually the case. Alarming as this condition of affairs may appear, it does not indicate that the incidence of insanity in the general population is increasing, for this has remained remarkably constant for a large number of years ; the increase in the asylum population is rather due to the improved health of the certified insane, which is reflected in a fall of the death-rate from 8·89 per cent. to 7·71 per cent. during the year. The recovery-rate shows little change at 31·64 per cent. (calculated on the direct admissions). The weekly cost of maintenance of rate-aided patients has fallen by no less than 12 per cent. It is significant that the proportion of rate-aided patients to the total certified insane is increasing, a change for which more stringent financial conditions among the middle classes are no doubt responsible ; "private" patients, although among them are included large numbers in the "Service" class, amount to only 11·6 per cent. of the total. The report discusses at length the available means of providing further accommodation. The position can probably be relieved, at all events for a time, by other and less costly means than the erection of new hospitals, and if the suggestions made by the Board are carried out, the relief of congestion may well be accompanied by improvement in the conditions and amenities of existing institutions. These suggestions fall naturally into two categories. The aim of the first is a redistribution of the inmates, staff included. In many mental hospitals there is no separate nurses' home, and the provision of such a building would set free additional beds in the main building, besides improving the attractions of a nursing career in the eyes of possible candidates for the staff. There is a similar lack of separate admission hospitals and villas for convalescent cases. It is well recognised that treatment, apart from the chronic insane, is of advantage both at the beginning and at the end of a recoverable mental illness, and such reconstruction would therefore increase the resources as well as the mere capacity of the hospital which undertook it. The other category is concerned with accommodating certain of the insane elsewhere. There are many who might well be transferred to Poor-law institutions, to institutions for the mentally defective (if these existed), or boarded out under single care.

Favourable comment is made on certain details of administrative progress. There have been improvements in classification, in the encouragement of personal cleanliness, in the granting of freedom (whether within the asylum or on parole outside), in the provision of dental and other specialist treatment, in the provision of clothing and amusements and in dietaries. Occupational treatment is said to leave room for improvement, an undue number of patients appearing in the returns as being employed only in ward work. There is also a widespread lack of facilities for the isolation of infectious disease; where suitable buildings exist they are sometimes either unequipped or in occupation for other purposes. The fact remains that the average health of asylum inmates shows a marked improvement. No doubt the fall in mortality is due in no small part to the reduced incidence of tuberculosis, the number of recognised cases having fallen by several hundreds to the figure of 1288. There is very wide variation in the incidence of tuberculosis in different hospitals, and since the proportion of tuberculous inmates has been persistently high for a number of years in the same institutions, some explanation for this local variation must exist, as well as for the fact that the average incidence is still eight times that among the general population. Whether this is due to the "mental and physical peculiarities of the insane," to intra-mural ward infection, or to a deficient dietary, is still a matter largely of conjecture. Both dysentery and "severe diarrhœa"—which are now notified weekly, with much greater resulting accuracy in estimating their frequency—have diminished considerably, probably as the result of improved methods in dealing with foul linen, as recommended in a circular issued by the Board. Typhoid and paratyphoid, on the other hand, show little change, and it is a remarkable fact that women, among both patients and staff, appear very much more liable to attack by this disease than men. It is not suggested in the report that this discrepancy may be explained in part by persistence among the male population of the immunity conferred by war-time inoculation; indeed, no mention is made of this possible factor, although it would certainly appear to be one worthy of investigation. A long section of the report deals with original investigations which have been carried out during the year. Twelve mental hospitals have been engaged in research of various kinds, whether bacteriological, biochemical, or therapeutic. In the latter class are, of course, included a variety of attempts in various hospitals at the specific treatment of general paralysis. Much of this work has already been summarised in THE LANCET.

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[1] H.M. Stationery Office. 10s. 6d.

Less cheerful reading will be found in the section of the report dealing with mental deficiency. Whereas the sins of omission and other peccadilloes of the public asylums are treated with a bland and almost apologetic consideration, the entire failure of certain local authorities to give effect to the provisions of the Education Acts with regard to mental deficiency is not unnaturally deplored in measured, but very definite terms. A contrast is drawn between a certain easily recognised Midland centre, where the organisation for dealing with defectives has been perfected to a high degree, and another town where it can be said hardly to exist. In the former case the ascertained defectives amount to 1·1 per cent. of children of school age, in the latter to 0·2 per cent., which does not mean that the latter town enjoys a singular freedom from mental deficiency, but simply that it has totally inadequate facilities for detecting it, apart altogether from any means of dealing with it after detection. The total "ascertainments" throughout the country amount to 35,413, but if anyone supposes that this figure anything like represents the number of defectives with which we have to deal he is unfortunately and greatly mistaken. "Ascertainment," either by officials or by voluntary associations, or by coöperation between local authorities, the managers of refuges, and the police, is sometimes almost entirely neglected. As regards disposal, in some large centres there are no special schools whatever; 33 local authorities have not placed a single case under supervision; 54 have not a single case under guardianship. The lack of large institutions for training is, of course, notorious. That the lives of defectives can be made happier and more useful and that many social evils might be averted by effective provision of this kind is perfectly well known, and unless more active steps are taken in the near future by certain local authorities, it may well be asked whether further legislation is not advisable to ensure that the provisions of the Education Acts shall be more effectively and more generally carried out.

ENDOGENOUS ALCOHOLURIA.

THE metabolism of alcohol has suffered a singular neglect at the hands of physiologists and biochemists. For this reason Prof. Heilner's review[1] deserves careful attention, particularly as he propounds an ingenious theory of his own based upon observations on the excretion of alcohol in the urine. He begins by discussing the importance of catalysts and enzymes in oxidising the intermediate products of metabolism, pointing out that such diseases as alkaptonuria and cystinuria are due to the absence of these bodies. Ketosis is also due to the derangement of some catalyst or ferment responsible for the final oxidation of fatty acids, although the antiketogenous action of carbohydrates remains almost unexplained. In 1908 Dr. Heilner suggested that alcohol, formed intracellularly from sugar, was able to act as a catalyst in the oxidation and breakdown of fatty acids, supporting his theory by the fact that endogenous alcohol was known to originate from normal carbohydrate metabolism. Thus in diabetes mellitus, the alcohol content is lessened in the tissues, while the administration of alcohol by the mouth lessens the excretion of acetone bodies in the urine. Dr. Heilner, however, regards the action of exogenous alcohol as being quite different from that of endogenous, which might be regarded as "nascent." According to him, the administration of alcohol, either subcutaneously or by the mouth, is followed by the taking up of this substance by the various tissues and organs, according to their particular "affinity." The alcohol is then drained from these tissues to the liver and muscles, where it is oxidised. Endogenous alcohol, on the other hand, is immediately oxidised in the cells in which it is formed. The only cells where this process goes on normally are those of the muscles and liver, and consequently these cells are not damaged by the process. Nerve cells, however, which, owing to their lipoid content, dissolve a large quantity of alcohol, are unable to produce or oxidise it, with the result that intoxication results from the exogenous variety. A series of experiments on rabbits are given in support of this view. Rabbits are easily killed by the administration of alcohol by the mouth, whilst the same dose administered intramuscularly merely produces mild symptoms of intoxication. These observations led the author to inject alcohol for the treatment of diabetic coma. He thought there might be a series of diseases due to the lack of a specific ferment or catalyst necessary for the oxidation of endogenous alcohol, which would then circulate, and, by its solubility in nerve cells, produce various nervous diseases. In the first place it was necessary to prove that no alcohol was excreted in the normal individual. This was demonstrated by a long series of urinary examinations of teetotal people, Widmark's method with modification being employed. Alcohol was not found in normal urines, but it occurred in a fair proportion of 50 cases from a psychiatric clinic. The average amount present was 0·15 part per 1000 of urine; in one case as much as 1·26 g. of alcohol was found in the 24 hours specimen. The patients were, of course, kept on a rigid diet, from which alcohol was excluded. The author next considered the question as to whether the origin of the urinary alcohol might not lie in fermentation of carbohydrates in the gut. This he negatived for various reasons, and deduced that its presence was due to the lack of some specific ferment. Finally, the catalytic action of alcohol in the oxidation of fats was examined; it was found that the production of endogenous alcohol increased when fat katabolism increased.

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[1] Endogene Alkoholurie. Der Aethylalkohol als Zwischenprodukt. By Prof. Ernst Heilner. Münchener Medizinische Wochenschrift, Oct. 10th, 1924.

The author concludes that endogenous alcoholuria may play an important part in the ætiology of nervous diseases. Many arguments could be brought against Dr. Heilner's theories; the author puts them forward tentatively with a view to further investigation.

SHELL-FISH AND DISEASE.

THE connexion between diseases of the enteric group and polluted shell-fish is now clearly recognised, although it is only within comparatively recent years that this connexion has been definitely established. The passage of infected material into a river which carries the virulent bacteria down to the oyster-beds in its estuary is too well known a fact to need further elaboration. Despite the vigilance of sanitary authorities it seems almost impossible to prevent this entirely, and consequently interest settles round the detection of the oyster which has come from a polluted bed. How this may be done and how the health authorities on the one hand and the Ancient and Worshipful Company of Fishmongers on the other have coöperated to prevent the sale of disease-bearing shell-fish is described by Prof. J. W. H. Eyre in the current issue of *Public Health*. The principle involved lies in the fact that "disease-producing 'intestinal' bacteria rarely occur except in association with a preponderance of *Bacillus coli*," and hence an estimate of the safety or danger of any given batch of oysters can be demonstrated by a bacteriological examination for the latter organism. By mincing the interior of oysters and examining a fine suspension of this material in sterile water the number of colon bacilli may be estimated, following a difficult and complicated technique. Such an operation will, however, require many days for its completion, and from the point of view of the oyster merchant may be vexatious in the extreme. Consequently Prof. Eyre has elaborated a "short method" which permits an opinion to be given after 24 hours. Briefly, it consists of opening oysters with aseptic precautions and inoculating the liquor into tubes of bile-salt broth, of glucose broth, and of litmus milk in suitable dilutions. After 24 hours' incubation these tubes are examined and the presence or otherwise of the colon bacillus determined by observation of the usual changes in the media. If acidity and gas are present in the bile-salt broth culture, for example, this is held to indicate that the oyster from which it was derived contained *at least* 50 *B. coli*, and is therefore to be condemned according to a definite standard determined by the more complicated long method of analysis. If a certain batch of shell-fish is condemned it is the Company of Fishmongers which usually takes action, for under the existing regulations it is a cumbersome undertaking for the local health authorities to institute proceedings. The Company has autocratic control over the London fish market, and it is both the jealous guardian of the interests of the public and the protective patron of the oyster industry. A study of the incidence of typhoid fever in the area over which the Company principally exercises its control is a striking testimony to the work carried out, although factors other than a stringent supervision of the shell-fish industry have also to be considered.

Not only do shell-fish cause disease by harbouring virulent organisms, but they may also be responsible for attacks of urticaria, mussels sometimes giving rise to an acute form of poisoning. In connexion with the latter, two French authors, Fiessinger and Ravina, have recently described[1] a milder form of poisoning by mussels which gives rise to a benign type of jaundice. There is no sudden onset within a few hours of eating mussels as in the acute cases, but two or three days after the meal a mild jaundice develops with a slight enlargement of the liver, absence of bile from the stools and its appearance in the urine as in the ordinary catarrhal jaundice. These authors studied the effect on guinea-pigs of the injection of glycerine and alcohol extracts of mussels, and they report that microscopical examination of the liver in these animals showed definite degenerative changes in the hepatic cells, particularly in the centre of the lobules. They are unable to conclude whether the toxic substance which produces these changes is the same which gives rise to acute mussel poisoning, and it is interesting to note that their cases of jaundice represented single individuals who had eaten mussels in company with others who remained unaffected, while in the case of acute poisoning it is generally a group of persons eating mussels from the same batch who develop symptoms.

MASKING NAUSEOUS DRUGS.

Curare cito, tuto et jucunde. To cure quickly, safely and pleasantly was set out long ago by Asclepiades as the object of any medicinal formula. *Jucunde* has proved a hard problem, and the unpleasant taste of many drugs is still a grave drawback to their use, especially with children. In the United States a large number of the commoner drugs are now obtainable in the form of sweets, and while this may be a handy method of overcoming a difficulty, it is not free from objections, amongst which increased cost is one. This also applies to the use of cachets and the like, where there is often the added drawback of the child's difficulty in swallowing such things. A more satisfactory way of rendering physic palatable is to make the drug itself tasteless or pleasant tasting, a matter to which Dr. Bachem has given careful attention in a recent number of the *Munich Medical Journal*. A large number of substances were tested by the following method. The tongue was touched with some of the solution to be used in diminishing the taste of the drug, and the latter was subsequently placed on the tongue and the taste observed. The effects of the several phosphates of sodium on the taste of various drugs were striking. For example, disodium phosphate very greatly diminishes the bitter taste of veronal-sodium, and tablets called "Paranoval," containing 0·25 g. of each of these substances, are said to be nearly tasteless in aqueous solution. A 10 per cent. solution of disodium phosphate also greatly diminishes the bitter taste of a 1 per cent. digitalis infusion and of a 1/10 per cent. solution of strychnine nitrate. The bitter taste of tincture of aloes and of quinine hydrochloride was only slightly diminished by disodium phosphate, which has also hardly any effect on the taste of tincture of gentian, morphine solution, potassium bromide solution (20 per cent.), and a 10 per cent. solution of caffeine sodium salicylate. A 10 per cent. solution of acid sodium phosphate rendered a 10 per cent. solution of veronal-sodium practically tasteless, but, curiously enough, it had no effect in improving the taste of a 1 per cent. digitalis infusion or a 2 per cent. quinine hydrochloride solution. The taste of the latter, however, was rendered far less bitter when the acid sodium phosphate was used in 20 per cent. solution, and such a solution also improved the taste of strychnine nitrate, urotropin, 1 per cent. morphine, and caffeine sodium salicylate. Acid sodium phosphate has practically no effect on the bitter taste of tincture of aloes, and mitigates but little the unpleasant taste of saline substances, its own taste becoming appreciable.

Remarkably successful results were obtained by the use of tincture of eriodictyon (*Yerba santa*) in removing or diminishing the unpleasant taste of a great variety of drugs. With the exception of aqueous phenol and ferrous sulphate solutions, every unpleasant or bitter tasting substance investigated underwent a great improvement in taste. Even bitter principles such as tincture of gentian and tincture of aloes almost completely lost their bitterness. A very large number of unpleasant tasting drugs gave satisfactory results, including 0·5 per cent. phenol, although 2 per cent. did not show much improvement. Fruit essences also have a marked effect in diminishing or improving the unpleasant taste of drugs subsequently placed on the tongue. A so-called raspberry essence, consisting of a mixture of the actual distillate from raspberries, with spirit and small quantities of various esters, chloroform, vanillin, &c., was used and placed on the tongue. After the sharp taste of the essence had disappeared, the unpleasant tasting drugs were applied to the tongue, and a distinct improvement was observed in almost every case tried, even including 5 per cent. ferrous sulphate. Only a slight improvement was found with undiluted tincture of aloes, 2 per cent. phenol, and 10 per cent. potassium iodide. There was also a noteworthy improvement even in the sweet taste of sodium salicylate. Gymnemic acid (from *Gymnema silvestris*) has the remarkable property of removing the sweet taste of all substances, though other tastes are unaffected. For example, it causes a sweet orange to taste like a lime, and renders sugar tasteless. It is difficult to give a rational explanation of the physiological mode of action of these taste-suppressing substances, particularly in the case of the phosphates. The raspberry essence is very sparingly soluble in water, and readily soluble in lipoids, and so its effect in inhibiting the action of the sensory nerve endings is not so inexplicable.

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[1] Bulletin des Hôpitaux, Oct. 16th, 1924.

THE PRACTITIONER'S RESPONSIBILITY FOR THE MENTAL PATIENT'S SAFETY.

A CORRESPONDENT asks if any further duty attaches to a medical practitioner when, having informed a lunatic's nearest relative that it is desirable for everybody's safety that he should be removed to an asylum and that he is a danger to the public while at large, they refuse to take any action. Should the practitioner himself, our correspondent asks, spontaneously inform the authorities, or conversely, if he allows matters to remain as they are, would he be held in any way responsible were a tragedy to occur?—The question seems to us to fall under three heads, according as it affects the patient, the public, or the practitioner. If the patient is likely to suffer through neglect of proper treatment, we doubt whether anything can be done beyond giving a report in writing to the relatives and disclaiming further responsibility. If there be danger to the public, much depends on the gravity of the case. Should it be merely a question of a public nuisance the previous course of action may suffice; but if there be a likelihood of injury or assault—such as when a paranoiac carried firearms—the practitioner should inform the relieving officer of the facts and leave the matter with him. If it be possible to secure a second opinion before taking this step it would reduce the responsibility. In such a case a careful record should be made at the time of all material facts. The practitioner will be protected against legal action if he acts with reasonable care and in good faith. But if he knows a person to be dangerous and not under proper care and neglects to inform the authorities, he would certainly be blamed by the coroner should a tragedy occur.

ANEURYSM OF THE SPLENIC ARTERY.

DR. E. A. Baumgartner and Dr. W. S. Thomas,[1] of the Clifton Springs Sanitarium, New York, have collected 40 examples of this rare condition from the literature of the last 50 years, including a case which recently came under their observation. The cases were evenly distributed between the sexes; 19 were males and 16 females, while in 5 the sex was not stated. In 31 the ages ranged from 20 to 60, with 9 in the fourth decennium, and 8 each in the third and fifth, while in 6 the age was not given. Endocarditis with embolism or localised infection was described in only about an eighth of the cases. In only four was there a history of trauma, and in six case reports it is particularly stated that there was no history or evidence of syphilis, and the Wassermann reaction was negative. No one definite cause could therefore be given as in the case of aortic aneurysm. As regards the symptoms, over half the cases had either gastro-intestinal or intraperitoneal hæmorrhages. The gastro-intestinal hæmorrhages may last several months or may terminate fatally at once after rupture into the gastro-intestinal tract. Intraperitoneal hæmorrhage, due to rupture, was fatal in all the 12 cases in which it was found. Although in 15 cases the aneurysm was the size of a hen's egg or larger, in only four was an epigastric tumour described. Pain has been noted either in the form of very severe abdominal cramp or of discomfort only in the epigastrium. In 32 cases the aneurysm was situated in the main trunk of the splenic artery, in seven in one or more of its branches, and in one, reported by Osler, in both the trunk and the branches. In only one case, which was reported by Hoegler in 1920, was a diagnosis made before operation or autopsy. The writers, however, are of opinion that a history of epigastric or upper abdominal pain, more or less gastro-intestinal hæmorrhage, an enlarged spleen, an epigastric tumour with a murmur, and anæmia should certainly point to a splenic aneurysm, though none of these findings should rule out an aneurysm of the cœliac axis. The prognosis is bad, but is much better after operation. Six cases were operated on and four of these recovered, the only recoveries made out of the whole series of 40 cases. Laparotomy should be performed as early as possible. The writers' patient was a woman, aged 48, who had had a history of indigestion all her life and three attacks of severe gastro-intestinal hæmorrhage in the year before death. X ray examination was not satisfactory, although it showed a large spleen. Operation was not performed, as the patient was in extremis. At the autopsy an aneurysmal sac was found in the splenic artery, measuring 9 cm. in diameter, which is probably the largest on record. This was all the more remarkable, as no epigastric tumour had been found during life. The wall of the sac was 1 cm. thick and was composed of dense fibrous tissue. The spleen showed chronic passive congestion and there was hæmorrhage in the stomach and intestines.

COMPARATIVE MEDICINE.

THE Section of Comparative Medicine which was inaugurated at the Royal Society of Medicine in July, 1923, now musters 191 members, of whom 127 are human practitioners and 64 are veterinarians. Prof. F. Hobday is the first veterinarian to occupy the presidential chair, and in his opening address delivered last month he expressed his gratification at the selection of a title to the section which covers everything pertaining to the diseases of the human and animal worlds, including those of fish, insects, and plants. There are, he said, many diseases intercommunicable between animals and man, many which are analogous, and many which show totally different methods of manifestation; the contrasts of the latter being not only between man and animals but between the different varieties of animals themselves. Of intercommunicable diseases, to mention only some which are common in this country, there are glanders, tuberculosis, anthrax, rabies, mange, ringworm, and trichinosis; for study on analogous lines there are such diseases as influenza, pneumonia, tetanus, internal parasitic affections, diabetes, cystitis, pyorrhœa, dental caries, many surgical operations, and the formation of cancerous and other tumours. An instance of startling difference in the power of infecting some species and failing to infect others is afforded by the great and fatal virulence of *Bacillus mallei* for man and the horse tribe, and the immunity possessed by the ox; per contra the ruminant and pig tribes are extremely sensitive to foot-and-mouth disease, the horse and ass are comparatively insensitive. The comparative immunity of the dog to anthrax, compared with the extreme fatality of this disease to other animals, requires explanation. There is, Prof. Hobday went on, comparative work to be done in every section; much can be mutually learned by comparison between the method of working which brings the desired successful result in the man or the animal, and between the symptoms caused by the same disease in each variety of patient. Flesh is flesh, whether of man or beast, and disease is the common enemy. The administration of anæsthetics, the splendid safety of present-day surgery, the study of therapeutics and pathology, even medicine itself, all depended largely on pioneer work done upon animal patients. He encouraged veterinarians to attend the other section of the Society whenever there was anything to interest them. A closer union of medical and veterinary science was needed in order to bring about the prevention and extinction of disease in many parts of the world.

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[1] Surgery, Gynecology, and Obstetrics, October, 1924.

ANTI-RABIC TREATMENT.

WE owe it to the late Lord Long that rabies is no longer an existing danger in this country, for no case of rabies in animals has occurred in England and Wales since December, 1921. In view of this encouraging fact the Minister of Health has decided that special arrangements for anti-rabic treatment in this country are no longer necessary, although a watchful eye has still to be kept on foolish attempts to introduce canine pets by aeroplane. Therefore the Ministry has issued a revised memorandum to the sanitary authorities on the procedure recommended to be followed in the event of persons being bitten by dogs suspected or ascertained to be rabid. Arrangements for anti-rabic treatment with carbolised vaccine, prepared at the Ministry's laboratory, may still be made with Prof. L. S. Dudgeon at the Department of Pathology, St. Thomas's Hospital, London, S.E. 1, but the cost of treatment and any other expenses must now be borne by the patient. In any case where the medical officer of health is satisfied that a person who needs anti-rabic treatment cannot pay for the treatment or stay in London at his own expense for the two or three weeks necessary for the completion of the course, he must at once represent the matter to the council or to the chairman of the council in order that the funds required may be provided by the council. The Minister of Health is prepared to sanction reasonable expenditure incurred by the council for this purpose. The lines on which first-aid treatment of persons bitten by dogs should be carried out, in areas where rabies is suspected, are set out in the memorandum as follows:—

> The wound should be treated as soon as possible with undiluted carbolic acid, undiluted izal or similar disinfectant. The disinfectant should be allowed to come into contact with all parts of the wound, and should then be washed out with water or dilute disinfectant. If no disinfectant of the kind is available, the wound should be thoroughly washed and irrigated with hot or cold water. Where it is possible to get the immediate services of a doctor the treatment should be placed in his hands. If the diagnosis of rabies in the dog is confirmed, or notice is received from the Minister of Health that the case should be regarded as one of rabies for purposes of treatment, the person bitten should be urged to secure specific anti-rabic treatment as soon as possible, no matter what local treatment has been applied to the bite. Arrangements for anti-rabic treatment should be made through the medical officer of health of the district in which the patient resides.

Persons bitten by stray dogs or by dogs exhibiting unusual behaviour should at once inform the police with a view to the necessary inquiries being made.

> By arrangement with the Ministry of Agriculture and Fisheries, the names of all persons known to officers of that department or to the police to have been bitten by dogs suspected of being rabid will be communicated at once to the medical officer of health of the district in which the bitten persons live. As soon as information reaches the medical officer of health that a person in his district has been bitten by a dog suspected of being rabid, the facts of the case should at once be reported to the Senior Medical Officer, Med. I, Ministry of Health, giving full particulars. The medical officer of health should await instructions from the Minister of Health before sending patients away for treatment.

A brief summary is given of the principles which should guide a medical officer of health in recommending specific anti-rabic treatment. The instructions for the medical officer of health laid down in the memorandum—which apply also to cases notified as occurring in any of the Services—would appear to demand a vast amount of correspondence between various authorities before specific treatment can be instituted in cases where the disease is not self-evident. We sincerely hope that they will not invalidate the final injunction as to the "importance of securing all possible expedition in the procedure."

THE LONGMANS BI-CENTENARY.

LAST year, when we celebrated our centenary, we called attention to the fact that certain firms connected with THE LANCET by the strong links that join the publishers of medical books with the producers of a medical journal, rejoiced in a still more venerable pedigree than our own. It is a pleasant duty this year to congratulate Messrs. Longmans, Green and Co., who have now been established in the publishing trade for 200 years. We have to thank this firm for many classics. The debt owed by medical men to their discrimination is evident if we consider only a few of their more famous successes. Gray's Anatomy, for example, first published in 1858, is now flourishing in its twenty-second edition. Bayliss on the Principles of General Physiology is a classic unlikely to be superseded, whereas Sharpey-Schafer's Essentials of Histology, Quain's Dictionary of Medicine and Watson's Physics are hardly less well established. Of more recent origin, but no less useful, are the Monographs on Physiology and on Biochemistry, edited respectively by Prof. Ernest Starling and by Prof. R. H. A. Plimmer jointly with Prof. F. G. Hopkins. In the October number of the *Edinburgh Review* Mr. Harold Cox sets out the history of Longmans, Green and Co., and, like most true stories of a family business, the narrative is absorbing. The present partners include members of the sixth generation of Longmans to control the firm; we offer them the congratulations of a stalwart younger brother who is precluded from jealousy of their seniority by the assurance that in a few more centuries, when each of us has really reached maturity, the difference in age will appear inconsiderable.

THE FUNCTION OF THE CORPUS STRIATUM.

IN dealing in our issue of Oct. 25th with the localisation of "sleep centres" we noted the lack of exact knowledge of the functions of the thalamus and corpus striatum. It was the publication of S. A. K. Wilson's paper in 1912 on the disease named by him progressive lenticular degeneration which focused the attention of neuropathologists upon the corpus striatum, a region of the brain the pathology and physiology of which had been hitherto almost an untouched field. It is true that isolated cases of the malady had been recorded earlier by Gowers under the name of tetanoid chorea, and that C. Vogt had formulated a syndrome of the corpus striatum, but it remains the fact that until 1912 practically nothing was known of the structural reaction of the corpus striatum to disease, nor of its symptomatology in these circumstances. Since this date Wilson's paper has acted as a potent stimulus to clinical and pathological investigation, and an abundant literature has grown up on the subject. Nevertheless, more problems of every kind have been raised for solution by these researches than have been solved. Our knowledge of the normal functions of the basal ganglia remains where it was, and while we now possess an extensive and minute knowledge of the morbid histology of the structures in question, there is still considerable uncertainty as to what elements in the various so-called syndromes of the corpus striatum actually derive from disease within it, and not from involvement of adjacent regions of the brain. Moreover, a considerable degree of quite unnecessary confusion has been imparted to the subject by the application of the term "pseudosclerosis" to examples of the disease described by Wilson. The word in question was coined in 1883 by C. Westphal to differentiate from disseminated sclerosis two cases which, while presenting a clinical picture akin to that of this malady, failed to show the underlying lesions in the nervous system. From this period up to 1912, various obscure, diverse, and incompletely elucidated conditions have been included under this heading, which, vague from the outset, soon became meaningless. Unfortunately, German writers now use it to describe cases of progressive lenticular degeneration, despite the fact that Westphal's cases were clearly not examples of this disease. In the current number of *Medical Science* F. M. R. Walshe reviews briefly the recent additions to our knowledge of progressive lenticular degeneration, and of its position in relation to the condition now known as pseudosclerosis.

Progressive lenticular degeneration is described as a fatal disease characterised by the development of tremor and muscular rigidity closely resembling those seen in paralysis agitans, by dysarthria and dysphagia, by spasmodic weeping and laughter, and a slight degree of dementia. Like other of the so-called extrapyramidal diseases, it does not present the loss of voluntary power and the alterations in the reflexes characteristic of lesions involving the pyramidal system. Pathologically, the lesion found by Wilson included bilateral degeneration and softening of the putamen and caudate nucleus, and a profound degree of hepatic cirrhosis. It is the latter feature which renders the malady so unique, and it is of interest to note that the cirrhosis is clinically latent. As is the case with every newly discovered nervous disease, experience reveals, during the course of years, that the clinical picture and the underlying lesion are subject to much wider variations than were at first recognised. In the present instance this is particularly the case with the lesions. Cases have been described in which involuntary movements of athetotic type have replaced tremor, and it seems clear that the so-called torsion spasm is a clinical variant of the disease. One case presenting muscular rigidity without any involuntary movement has also been recorded, and verified pathologically. In respect of the morbid anatomy of the malady, a considerable modification of our original conceptions has become necessary. Of the 30 cases which have come to autopsy, a condition like that described by Wilson has been found in 14. In the others much less gross changes have been visible to the naked eye, and microscopic examination has shown that a system disease of the corpus striatum is not in question, but that cellular changes and nerve-fibre degeneration may be present in the cerebral cortex, cerebellum, and brain stem. A secondary neuroglial proliferation, corresponding in intensity and distribution to the parenchymatous change, is also found. In every instance, despite variations in the nervous lesion, hepatic cirrhosis is constant. These variations in the microscopic picture, with the addition of an inconstant and obscure pigmentation of the cornea, are now made the basis by German neuropathologists for the differentiation of progressive lenticular degeneration, as described by Wilson, from "pseudosclerosis." It is stated that a diffuse and purely microscopic lesion and the presence of corneal pigmentation are characteristic of a disease "pseudosclerosis," and that the presence of a sharply delimited lenticular necrosis and the absence of corneal pigmentation are the features of Wilson's disease. There can no longer be any doubt, however, that these are purely artificial criteria. In unequivocal cases of Wilson's disease, widely diffuse nervous lesions and corneal pigmentation have been recorded, while Spielmeyer has shown that, despite variations in distribution and intensity of morbid change in the nervous system, the lesion is essentially the same in cases recorded under each heading. It is clear, therefore, that the term "pseudosclerosis" is both intrinsically bad and without practical value, and its persistent use has served but to add confusion to an already difficult problem.

Many attempts have been made to elaborate a notion of the normal functions of the corpus striatum from the analysis of the symptom-complexes resulting from its involvement by disease. The apparently strict limitation of the lesion in progressive lenticular degeneration, as originally described, raised hopes that a sound physiology of the corpus striatum might be erected in this way. Unfortunately, to localise symptoms in this structure is not necessarily to determine its function; the two problems are essentially distinct. We cannot safely argue from the rigidity of progressive lenticular degeneration that the corpus striatum normally regulates muscle tone, more especially in view of the evidence provided by the work of Magnus to the effect that this regulation is a function of brain-stem centres, nor may we conclude with Ramsay Hunt that because disease of the globus pallidus is associated clinically with tremor, this mass of grey matter normally inhibits a physiological tremor. Nevertheless, the discovery and description of progressive lenticular degeneration has marked the beginning of a notable advance in clinical and pathological knowledge, and may yet provide us with indications upon which additions to the physiology of the nervous system of equal importance may be built.

THE King has appointed Mr. Francis Desmond Donovan, L.D.S. R.C.S. Eng., Surgeon Dentist to His Majesty's Household.

DR. E. P. Cathcart, F.R.S., Professor of Chemical Physiology in the University of Glasgow, has been appointed into the vacancy in the membership of the Medical Research Council caused by the retirement of Prof. D. Noel Paton, F.R.S.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCV.—TREATMENT OF ANGINA PECTORIS.

BY angina pectoris I mean an arresting form of cardiac pain, substernal rather than submammary, in which the patient is conscious of a sense of oppression or constriction which may reach a high grade of intensity, up to intolerable anguish. This pain has well-recognised lines of radiation, and is often induced by effort or emotion. There are in addition characteristic associated symptoms not invariably present, notably the sense of impending death and of acute misery accompanied by varying vasomotor disorders such as cold sweats and deathly pallor. These attacks are the response of an inadequate heart to stress, due either to physical effort or emotion. Another potent factor is an exaltation or over-sensitiveness of the central nervous system consequent on prolonged worry, anxiety, or loss of sleep.

General Régime.

The first essential in dealing with the patient is to explain the significance of the phenomenon, pointing out that the substernal discomfort going on to pain must be accepted by him as a peremptory order to halt and to wait until the distress has passed. More than that, it must be considered as a clear indication of the necessity for a careful readjustment of his mode of life. Except in some of the milder cases of angina minor, the wise course is to insist on complete rest in bed for a month, if this be possible. During that time there is full opportunity for careful and detailed examination. When there is a raised blood pressure the patient can be watched to see how far rest and freedom from worry will reduce the hypertension and at the same time the renal efficiency can be investigated, if this is considered necessary, and the important question as to how far the mode of life must be modified will come under consideration. Plans for the future must be made for his guidance both in regard to his mental and physical activities. They must deal especially with the pace at which he lives and works, his hours at business, and the amount of travelling done. Special attention should be paid to the manner in which the patient spends his leisure, and any unnecessary expenditure of energy in politics or philanthropy viewed with disfavour. For anginal patients it is essential that the week-ends should be a time of rest, and all responsibilities which involve either mental or physical effort on the Sunday should be forthwith vetoed. When the time has come to attempt a return to a more normal life, the patient must be warned of the danger of exercise or effort immediately after a meal, more particularly if it entails exposure to a cold wind. An early retirement to bed is often helpful, and the patient who spends a quiet hour or two reading comfortably in bed before falling asleep is benefiting both his mind and his body. It is well to have the bed and bedroom warmed, otherwise an attack is likely to occur on retiring. Some patients are very sensitive to the chilly sensation experienced in getting into a cold bed.

The general treatment outlined above is an attempt to lower the level of physical effort in order to reduce the strain on a damaged and inadequate heart. As to medication, the recognition of the particular ætiological factor present may serve as an indication. When there is good reason to suspect syphilis, and more especially if the W.R. is positive, mercurial inunction is to be recommended, combined with iodide of potassium in doses of 10 to 15 gr. thrice daily; and a course of salvarsan or similar preparations should be given intravenously. In a large group of patients the blood pressure is unduly raised and persists at a high level in spite of rest and freedom from worry and nervous strain.

Diet and Exercise.

The *diet* of these patients requires regulating. The total intake of food is usually too great. The food should be simple and small in amount; soups and gravies should be eliminated and little if any fluid taken with the meals. It is wise to diminish greatly the amount of meat, roast or grilled, and also any excess of starchy foods or vegetables liable to cause flatulence. A blue pill once a week or fractional doses of calomel given in short courses with a regular morning saline are to be recommended. Where there is any tendency to intestinal flatulence, dimol or kerol in capsules or sodium acid sulphate in gr. x. to gr. xv. doses are all useful. All patients liable to angina should be careful not to overload their stomachs; the meals should be small and a period of rest allowed subsequent to the meal before any effort is attempted.

Exercise.—The myocardium, like every other muscle, benefits by exercise, and it is important that the anginal patient should not be made more of an invalid than is necessary. In the amount of effort undertaken his own sensations must be his guide. He must be honest with himself and slow down or stop at the first indication of substernal discomfort. The more natural a life the patient can lead the better, and he should make a point of getting some exercise daily in the open air. He should, however, be chary of walking against a stiff wind, more particularly if the air be keen. This difficulty in taking as much or as vigorous exercise as formerly tends to induce obesity with the consequent added stress on the heart. When this tendency is noted, vigorous efforts must be made to keep the weight within normal limits. Any gouty tendency should receive appropriate treatment, especially the windy distension of gouty dyspepsia.

In many patients the outstanding factor is mental, the result of prolonged overwork, domestic worries, or business activities. In them the nervous system is on edge. Massive doses of ammonium bromide are then of undoubted value, gr. xx. thrice daily. This is especially useful in the first month or two of treatment, when the patient's habits and mode of life are being reorganised.

Drugs and Special Methods.

The iodides have already been mentioned as of value in the syphilitic group. If they are tolerated well it is worth while giving them a fair trial in the presence of frank arterio-sclerosis. They are usefully combined with bromides, arsenic, and belladonna. Iodine may with advantage be prescribed in the collosol form—2 drachms thrice daily. Theobromine, either as a pure drug in 5 gr. doses given four times a day, or as diuretin in gr. x. doses three or four times daily, appears to diminish the liability to pain. The diuretin is more pleasant when prescribed with the syrup of ginger. If there is any tendency to anæmia or general debility simple hæmatinics combined with arsenic are of undoubted benefit when taken over a long period, the object being to improve the condition of the myocardium by supplying it with good blood.

Diathermy is a method of treatment which is on its trial, but there can be no doubt that it frequently makes patients more comfortable; it appears to diminish both the frequency and the severity of the attacks of anginal pain, though the effect on the blood pressure in patients with hypertension is not very dramatic. It should be administered in a dose varying from 700 to 1500 milliampères, for 20 to 30 minutes twice or thrice a week, the electrodes being placed one on each arm, or one over the præcordium and the other between the shoulders.

On the first indication of substernal discomfort a tablet of trinitrin slowly chewed frequently aborts the attack, and it is advisable to anticipate and ward off a seizure by sucking a tablet before going out into the cold air.

Treatment During an Attack.

In many instances the inhalation of amyl nitrite rapidly diminishes the severity of the pain and relieves the distress. This is, however, not always the case, nor, even when the pain is mitigated, is the effect persistent. If the vaso-dilators fail and the pain persists then there is no drug comparable to morphia. It should be given in sufficiently large doses to bring relief and should be combined with gr. 1/50th atropine. It is essential that the pain should be eased. In persistent angina the action of the hypodermic should be sustained by opium given as a draught. Chloral, gr. x. to xv., combined with this draught is also useful, or chloral may be taken twice a day instead of the opium for a few days at a time. If the pain is agonising and resistant to morphia, a general anæsthesia by the administration of chloroform is justifiable. In the earlier stages of the attack a rapid carminative is often most comforting. Brandy or whisky taken only slightly diluted will often be followed by the eructation of wind and consequent relief. A strong menthol draught is often more efficient. For example:

℞	Mentholis	gr. viii.
	Spts. ammon. co...	aa ℥i.
	Spts. chloroformi..	
	Tr. zingiberis	

Two teaspoonfuls in water taken as strong as possible.

The tendency to nocturnal attacks is often obviated by a draught of nepenthe washed down with an ounce of whisky in water before retiring.

Conclusion.

It is clear that in the management of this condition, except in the acute anginal seizures, the object of treatment is to prevent undue stress upon a depreciated myocardium. The pathological changes are incurable. The victim has to face his limitations and live within them. He has to learn to regulate his life and to live at a level of physical and mental effort compatible with his disability. But while recognising this, every means must be used to maintain the myocardium at the full power of which it is capable by a carefully regulated life and by medicinal and other measures.

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Medicine and the Law.

REX *v.* HADWEN.

THE trial of Dr. W. R. Hadwen at Gloucester, on a charge of manslaughter, arising out of the death of a child, his patient, merits close attention by reason of the rarity with which criminal charges, based on negligence, are brought against medical practitioners, and by the consequent importance of a full understanding of the circumstances in which Dr. Hadwen was tried and acquitted. The essential facts, the symptoms alleged in the witness-box to have been observed by those who gave evidence for the prosecution, having seen little Nellie Burnham when alive, the views expressed by those who did not so see her, the facts alleged, and the views avowed by Dr. Hadwen, will all be considered and weighed by our medical readers, who will form their own opinions as to whether the child died of diphtheria or did not suffer from it at any time. The latter was the contention of Dr. Hadwen and of counsel who defended him. It was not, however, necessary for the jury to state, or even to formulate, a conclusion as to this. They did not have to answer a series of questions as in a civil action. It was enough for them to say "Guilty" or "Not Guilty," in accordance with the judge's instruction as to the law, and their own interpretation and application of the facts before them. As Mr. Justice Lush's summing-up can be read in the Special Supplement to this issue, it is not necessary to refer here otherwise than briefly to the law governing manslaughter in the case of a medical practitioner charged with having caused the death of a patient by negligence. Charges of manslaughter by negligence are not uncommon, occurring as they do, for example, in cases when a motorist causes the death of a pedestrian or other person through reckless driving. If such a one, however, is convicted, it is because he has been proved guilty of more than mere carelessness, or lack of observation, or bad driving. He has been proved to have been recklessly and "criminally" negligent. As the judge who tried Dr. Hadwen told the jury in his summing-up, the case required strong and clear proof by the Crown that there had been "criminal" neglect. Moreover, the jury were not to say whether Dr. Hadwen's views were those of a wise medical man or not. Again, it was not enough for the Crown to prove that if the doctor had been careful the patient would have "had a chance." They must be satisfied that he had been careless, and that "in all human probability" if proper care had been used the child "would have recovered." There must, in short, be a much stronger case of negligence than in a civil action for negligence. Unless the negligence were of so gross a character as to amount to "wicked negligence" it would not justify a conviction for manslaughter.

The precise bearing of Dr. Hadwen's expressed opinions upon subjects which the medical profession at large accepts as facts was defined by Mr. Justice Lush. He regarded it as "very unfortunate" that a doctor should shut his eyes to matters generally accepted in his profession, but the jury were not there to criticise his views. He was allowed to follow the medical profession and even if he held peculiar views and at the same time acted as he considered best, he would not be guilty of culpable neglect, although he might be said to be "terribly and sadly mistaken." It will be observed from this that if the jury had been convinced that Dr. Hadwen ought to have taken a swab of Nellie Burnham's throat or to have used antitoxin, it would not necessarily have involved any obligation to convict him of manslaughter, unless they were satisfied that he had no honest belief that such omissions were wrong. If they thought that he honestly held the views he expressed he was in a different position from a man who made the same omissions from sheer carelessness, or, for example, from attending his patient when he was intoxicated. Fom the above it will clearly be seen that in view of the law the prosecution se themselves a difficult task in endeavouring to secure Dr. Hadwen's conviction upon an indictment for manslaughter, however undesirable his treatment of his patient may appear to other members of the medical profession. It was for the jury to hold that the conduct of the accused amounted to crimina misconduct, and also that it occasioned or accelerated death.

With reference to the conduct of the case for and against Dr. Hadwen, it will be seen that an objection was made by his counsel, Sir E. Marshall Hall, to evidence being given as to the result of the examination of the swab taken from the child's throat. This was on the ground that an envelope labelled "N. Burnham," in which the swab had been sent for examination, had been destroyed, and that therefore the swab examined was insufficiently identified. The evidence was admitted, but the judge advised that such envelopes should be kept, and medical men will note the necessity for strict identification and record as to any articles which may be destined to become exhibits in legal proceedings. Another point, as to which protest was made by the defence, in which protest the judge concurred, was the fact that Dr. Hadwen was not invited to be present at the post-mortem examination. There is no obligation as to this, nor is there any prohibition, in the Coroners Act, 1887, which, however, contains the following passage[1] in the section regarding post-mortems: "Provided that where a person states upon oath before the coroner that in his belief the death of the deceased was caused partly or entirely by the improper or negligent treatment of a medical practitioner or other person, such medical practitioners or other persons shall not be allowed to perform or assist at the post-mortem examination of the deceased." This seems to allow, or at any rate not to forbid, the attendance of the accused medical man, but merely in the capacity of an interested spectator with no power to interfere in any way.

The Venue of the Hadwen Case.

A legal correspondent writes as follows:—The unsuccessful attempt to remove the Hadwen trial from Gloucester to London illustrates a queer inconsistency of our law. On the one hand jurymen are directed to hearken to the evidence and are sworn to give a true verdict in the light of it, all hearsay testimony being carefully excluded. On the other hand, the accused person is entitled to be tried in the place where he is known. Venue, it may be unnecessary to explain, is the area of proper jurisdiction for trial of a crime by indictment. The initial Latin words of an ancient writ (now abolished) directed the sheriff to "make jurors come" to a particular place. The venue is the coming, the place to which the jurors come. Another expression used almost as a synonym for venue in early times is "visne," a word connoting vicinity. The jurors are men of the neighbourhood where the supposed crime is committed; and when in the old legal phrase a man who pleads "not guilty" is said to put himself upon the country (*ponit se super patriam*) his *patria* is not his fatherland but his own countryside. The explanation is historical. If the pedigree of our jury system is traced back far enough, the jurors are found not to be mere silent listeners and verdict-givers, but active investigators and actual witnesses who are directed to declare the common report of crimes in their neighbourhood. They are summoned not to hear all about the case and to decide accordingly, but because they know everything about it already. Until modern times, as is well known, a prisoner was not allowed to call witnesses. This restriction, which we find so monstrously unjust, perhaps was less remarkable in days when the jurymen themselves collected and presented the evidence. Be that as it may, an immemorial tradition has established the broad principle (subject to certain well-recognised modifications) that a man is to be tried in the place where he is known and where the evidence is available. In 1856, by what is known as the Palmer Act, Parliament permitted cases to be removed for trial to the Central Criminal Court "if it shall appear expedient to the ends of justice." Applications for removal are rare. On the one side accused persons are usually content to be judged on the spot, and it is often inconvenient for their legal advisers to go further afield; on the other side the Crown cannot apply to shift the venue without creating the impression of loading the dice against the accused. Nevertheless, the King's Bench Division does permit the removal either where a provincial jury will have to go and view premises in some other county, or where it is believed that a fair and impartial trial cannot be had in the jurisdiction in which the venue is laid.

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[1] Section 21, subsection 2.

This being the law, let us see what happened on the application in Dr. Hadwen's case. Up to a certain point the court was sympathetic; there was, at any rate, a case for argument. The difficulty was that the court was asked to contemplate first a state of acute local feeling and secondly the prospect of a forensic atmosphere which would prejudice a calm trial—two matters remarkably difficult to prove by affidavit in face of the excellent British tradition that it is more important that an accused person shall have his full rights than that the Crown shall secure a conviction. In dismissing the application the Lord Chief Justice gave a reason which many lawyers find unconvincing. "I cannot believe," he said, "that there cannot be found in Gloucester 12 persons who, whatever their view on other matters, will give a true verdict on the indictment." With profound respect to his Lordship the statement is irrelevant. Nobody doubts that hundreds of impartial persons could be found in Gloucester. Jurymen, however, are not selected after a search for impartiality but by a more haphazard method. Mr. Justice Avory agreed with the Lord Chief Justice, but Mr. Justice Clavell Salter observed that if he had to deal with the matter alone he would have taken the opposite view. "I feel some fears on the matter, which I hope will prove unfounded." When one reads of the atmosphere at the Gloucester trial, the crowds assembled not out of mere curiosity, but from partisan motives, the court packed with supporters of the accused, the hand-clapping and applause at any point which appeared to assist the defence, one may readily feel that the judicial fears proved all too well founded.

Special Articles.

THE HEALTH OF MERCHANT SEAMEN.

BY W. E. HOME, M.D., B.Sc., D.P.H.,
M.R.C.P. EDIN.,
FLEET SURGEON, R.N. (RETIRED).

CONCERNING merchant seamen, their health, the diseases that occur amongst them, and their death-rate as a class, there is no accurate knowledge. Something can be learned from the annual reports of the medical officers of health to port sanitary authorities, but the only information covering the whole ground is in the statement of the causes of the deaths of seamen which was published annually before the war by the Board of Trade. The war cut across all routines, but in 1920 the Board presented a "Return of the Deaths of Seamen and Fishermen reported to the Board of Trade in the Year ended 30th June, 1914," and, in the early part of this year, it issued a "Return of Shipping Casualties to and Deaths on Vessels Registered in the United Kingdom," which covered the years 1919, 1920, and 1921; this later return, particularly as it refers to 1921, may be profitably discussed. The return states the number of deaths from injury and disease in the Merchant Marine reported during 1921. This total is, of course, important and essential, but by itself insufficient. What the medical profession wants to know is not so much the deaths as the death-rates, and it does seem surprising that this return should neither supply these itself nor furnish the appropriate figures from which they could be calculated. There is a real difficulty. Figures of the total numbers of men employed from day to day in the Merchant Marine do not exist, but the Board does supply, to quote its own words, "figures (which) show the numbers of persons forming the first crews of vessels actually employed during the year specified, and furnish an approximate basis for estimating the variations in the extent of the risks." But then, unfortunately, that is just what the figures presented do not do. The number for 1921 is some 274,000, but that includes fishermen along with the men in trading vessels, who are the men generally known as "merchant seamen," and this figure, 274,000, does not enable us to calculate a death-rate for either. As a matter of fact, the Board of Trade gave me at once any figures asked for, so it has been possible to work out something like the wanted death-rates; but what real use to the world is such a return without the death-rates already worked out and with those of previous years for comparison?

The first table in the report that concerns us as medical men is Table VI., Deaths by Injury; these deaths are arranged in many classes and columns, at considerable expense for printing, according as they occurred in sail or steam, among British, foreign, or lascar seamen, or to masters, stewards, &c., but with never a statement of the total number of men in any one of the groups mentioned. Table VII. shows the deaths by disease reported amongst members of the crews of trading vessels, Table VIII. tells which of the deaths enumerated in Table VII. occurred after the patients had been discharged from their ships, and Table IX. shows the number of deaths to which drink was a contributory cause, and in each of these three tables the deaths of British, foreign, and lascar seamen are stated in separate columns, but again without any statement of the approximate numbers in each group.

"Whitaker's Almanack" is our great authority on the bureaucracy by which we are governed, but no medical officer can be found in "Whitaker" attached to the Board of Trade in any position which might give him oversight of these returns of deaths, and the returns themselves seem to bear witness to their origin under purely lay control. The diseases which were the causes of the deaths are arranged in eight groups. Group A, Specific Febrile Diseases, includes beri-beri, contrary to present practice. Group B, Constitutional Diseases, is rather a surprise, as that name for a group is almost forgotten. In the Navy health reports it was last used in the report for 1885, 40 years ago! Here it includes tuberculosis of all kinds, and cancer! It is somewhat astonishing that the Board of Trade should not have anyone to tell them that tuberculosis is an infectious disease, or that, knowing it, they should class it as constitutional.

It is probably an accident that this return of deaths is made by the Board of Trade. Other returns were supplied by the ships' captains, and somebody had to get the report of the deaths which had happened on the voyage, and therefore the captains would find it most convenient to send the death reports, with the others, to the Board of Trade. So the Board gets the figures, and, no doubt, worries a bit to see they are accurate, and then publishes them, for which we are grateful. The Board then ceases to worry. If the figures referred to bags of coffee or tons of coal, that would be all right; it would be to the financial interest of certain people to keep a watchful eye on the returns. But deaths of seamen are nobody's concern, and I urge that there ought to be somebody appointed to see that these figures are considered when submitted, and properly put before the profession and the country, and thus enabling them to be used for the benefit of the seamen. This can only be done by the

Ministry of Health, but, until it takes hold of the reins, who else is there to take the matter up except the National Sailors' and Firemen's Union, or some similar body?

As anyone studying these returns will first want to compare them with the similar figures published by the Navy, it would be very convenient if the method of grouping diseases adopted in the annual report of the health of the Navy (practically the same as that adopted by the Army) was followed by the Board of Trade here. In the table herewith I have endeavoured to classify the diseases, as far as possible, on that method. From this classification it will appear that in 1921 the death-rates were, in the Merchant Marine, for British seamen, 4·98 per 1000; for lascars, 6·72; and for foreign seamen, 8·41. The death-rate in the Navy was 3·57, in the Army 4·30. These figures, of course, include deaths from accidents, but the death-rates from disease alone were: British seamen, 2·08; foreign seamen, 3·16; lascars, 4·67; Navy, 2·00; and Army, 2·77.

1921.—Deaths and Death-rates in the Merchant Marine, Navy, and Army.

—	Deaths.			Death-rates.				
	Merchant Marine—							
No. of men in group.	British: 173,110.	Foreign: 15,790.	Lascar: 53,540.	British: 1000.	Foreign: 1000.	Lascar: 1000.	Navy: 1000.	Army: 1000.
Dysentery	11	1	13	0·07	0·06	0·24	0·01	0·09
Enteric fever	27	2	4	0·15	0·13	0·07	0·09	0·12
Influenza..	2	—	2	0·01	—	0·04	0·02	0·05
Malaria	40	1	9	0·23	0·06	0·17	0·06	0·27
Pneumonia	56	8	62	0·32	0·51	1·16	0·31	0·53
Small-pox	4	—	2	0·02	—	0·04	—	0·04
Tuberculosis (all) ..	26	3	33	0·15	0·19	0·62	0·28	0·24
Venereal disease ..	—	—	—	—	—	—	0·05	0·01
Other diseases due to infection	19	6	8	0·11	0·38	0·15	0·16	0·25
Dis. of the nervous system—	28	4	12	0·16	0·25	0·22	0·16	0·13
Circulatory	55	3	33	0·32	0·19	0·62	0·14	0·27
Respiratory ..	15	3	17	0·09	0·19	0·32	0·06	0·06
Digestive	38	4	24	0·22	0·25	0·45	0·31	0·41
Urinary and generative	21	3	3	0·12	0·19	0·06	0·10	0·06
Cutaneous	—	—	—	—	—	—	0·03	0·01
Various	2	3	7	0·01	0·19	0·13	0·20	0·16
Debility, unknown, &c.	18	9	21	0·10	0·57	0·39	—	0·02
Wounds in action ..	—	—	—	—	—	—	0·05	—
Heat-stroke	14	1	3	0·08	0·06	0·06	0·04	0·12 +
Alcohol	42	4	0	0·24	0·25	—	0·05	} 0·09
Other poisons.. ..	—	—	—	—	—	—	0·02	
Suicide	30	5	18	0·17	0·32	0·33	0·18	0·12
Other injuries.. ..	417	73	89	2·41	4·62	1·66	1·24	1·21
Total	865	133	360	4·98	8·41	6·72	3·57	4·30
Diseases	362	50	250	2·08	3·16	4·67	2·00	2·77
Accidents*	461	79	110	2·66	5·00	2·05	1·46	1·46
Alcohol	42	4	0	0·24	0·25	0	0·05	<0·09†

* Includes injuries, heat-stroke, and suicide.
† < =less than.

When considering the diseases of seamen, it is important to remember Dr. W. M. Willoughby's statement at the Congress of the Royal Sanitary Institute at Liverpool, that most of the diseases seen in ships come from the shore, and that, consequently, sailing ships (with longer time at sea) are healthier than steamers. To take, first, the death-rates of British seamen, we see that their enteric fever rate is higher than that of any other group. The pneumonia rate is the highest, and it is perhaps worth noticing that all the deaths from pneumonia were reported as occurring in steamships in 1921. Pneumonia is considered by the directing staffs of the Navy, Army, and Air Force to be a communicable or infectious disease, not a disease of the lung, and it is a pity it is not included by the Board of Trade in the A group, although it certainly is grouped still by the Registrar-General with the diseases of the respiratory system. All persons who deal with the health of numbers of men are coming to look on the incidence of pneumonia as a test for conditions of overcrowding. The death-rates for pneumonia in the Mercantile Marine were: British seamen, 0·32; foreign seamen, 0·51; lascars, 1·16; in the Navy, 0·31; and in the Army, 0·53. Attention should here be drawn to the fact that British and foreign seamen are required to have 120 cubic feet of air space in their ships, but lascars need not have more than 72, and that, in fact, they do have a much higher death-rate from pneumonia than have the others who are less closely crowded. A similar state of affairs becomes evident when we turn to the tuberculosis death-rates; these are in the Mercantile Marine: British, 0·15; foreign, 0·19; lascar, 0·62; in the Navy, 0·28; and in the Army, 0·24. The lascars with the smallest obligatory cubic space have far the heaviest rate. The other heavier death-rates for British seamen are due to: Diseases of the circulatory system, 0·32; alcohol, 0·24; and injuries, 2·41. Foreign seamen suffer severely, as already said, from pneumonia (0·51); they have also high death-rates from suicide (0·32), alcohol (0·25), and injuries (4·62). Lascars have the highest death-rate from suicide (0·33). The death-rate of lascars is obviously excessive, but the death-rate of British merchant seamen from disease is not far removed from that of the men in the Navy on the figures. But as the Board of Trade itself, as we have seen, remarks, we have only an approximate basis for estimating these rates. In the Navy and Army the number daily victualled is known, and the death-rates thereon calculated are accurate. In the Merchant Service we have only the figures of "the first crews of vessels" to go by, and these give us figures that would only be exactly comparable with those of the Navy, if all the ships were running on the New Year's day, and continued in steady employment all through the year, which they do not. The result is that every interruption makes the number of men given too high, so the death-rates are steadily lower on paper than they are in reality. The rates cannot be less than those in the table, but they may be a great deal higher. The true death-rates of the Merchant Service cannot be really known until the collection of the statistics is laid as a duty on the Ministry of Health, when an inspector, inspired by a knowledge of the value and importance of death-rates, would set himself to find out what the figures should be; he will not find the work, once he sets himself to it, nearly so difficult as it perhaps appears. The work should not, at any rate, be left in the hands of th Board of Trade, which is not staffed to appreciate what these figures mean, nor to do anything with them for the benefit of seamen, even when they are known.

McGILL UNIVERSITY, MONTREAL:
THE NEW PATHOLOGICAL BUILDING.

THE new pathological institute at McGill was opened by the Hon. N. Perodeau, Lieut.-Governor of the province of Quebec, on Oct. 6th, the 180th anniversary of the birth in Glasgow of James McGill, founder of the University. McGill died in Montreal in 1813 and left his estate there and £10,000 to establish a University, making the condition that this should be effected within ten years of his death. Prolonged litigation with the family led to much delay. A Charter was obtained in 1821 and in 1823 five professors were appointed, but no funds were available and there was no teaching. It was the existence of a private medical school, organised by the medical officers of the Montreal General Hospital, which relieved the University from this impasse, for in 1829 it was agreed that the Montreal Medical Institution should be "engrafted upon the College as its medical faculty." Which being done, the University came into actual existence, the medical faculty being by far the most important part of the organisation for the next 25 years or so; the arts faculty was established in 1843 and the faculty of natural science in 1857. The first degree granted by McGill was given in medicine in 1833. The medical school was for many years housed in the town, and it was not till 1872 that it obtained a building in the University grounds. Successive extensions were made from time to time and a splendid set of buildings is now completed by the new pathological institute.

History of Pathology at McGill University.

In this medical faculty pathology has always held an honoured position. In the middle of last century the clinical staff had largely been brought up under Scottish influence, and morbid anatomy was carefully cultivated and specimens were collected for teaching purposes in relation to medicine and surgery; some of these are still in the museum. This autopsy work was a distinctive feature of McGill and contrasted with the practice of American schools at the time when post-mortems were usually cursory or hardly performed at all. On this groundwork systematic independent teaching and research was implanted by Osler, who, in the 'seventies, came back from a trip to Europe full of enthusiasm and admiration for Virchow and his methods and started classes in pathological anatomy and histology (originally held in the cloak room) as part of his chair of the institutes of medicine. The chair of pathology was founded in 1892, and Dr. J. G. Adami, now Vice-Chancellor of the University of Liverpool, did much as first professor to enhance the reputation of McGill in the pathological world till he was succeeded ten years ago by Dr. Horst Oertel, under whom the department has reached its present imposing dimensions.

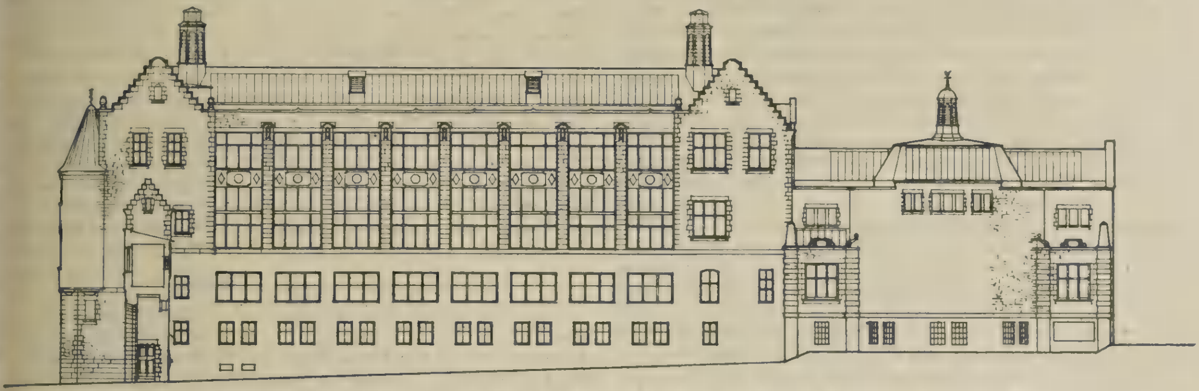

FIG. 1.—Elevation to courtyard of the new Pathological Institute at McGill University.

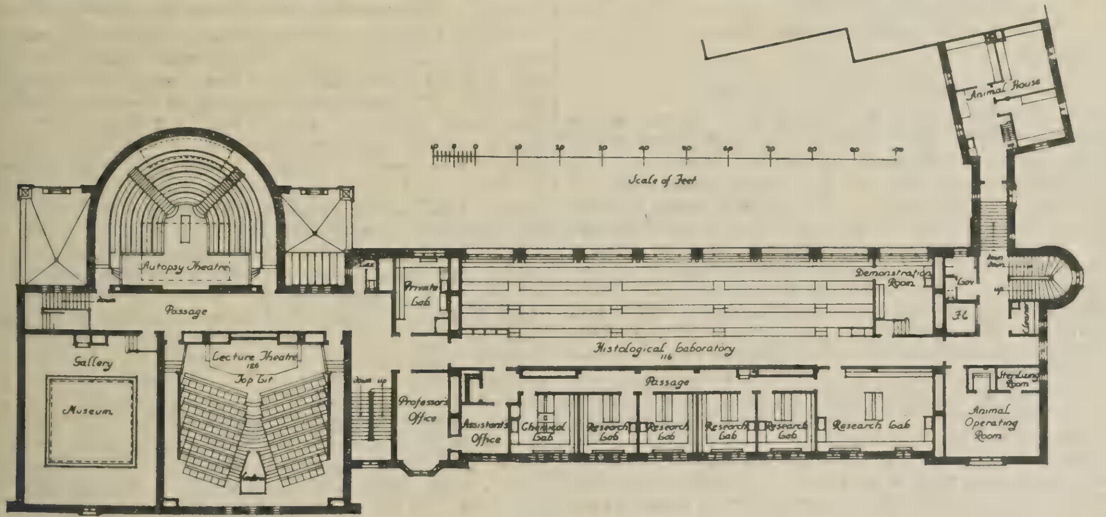

FIG. 2.—Plan of the second floor of the Institute.

The governors' minute-book records that at the momentous meeting in 1829 the room was filled by "numerous and respectable individuals who had assembled to witness the ceremony. Among the company was noticed several Members of the Government, the principal members of the Bar, the lecturers at the Montreal Medical Institution, and several gentlemen more or less connected with the proposed College." Much the same might be said of the present occasion, and there were in addition a number of delegates and representatives from other universities. The dedicatory address, which we shall print in a later issue, was given by Prof. A. E. Boycott.

The New Building.

The new building, a small part of which houses also medical jurisprudence, has been erected with funds subscribed for the centenary celebrations by the citizens of Montreal and the alumni of the University; large contributions have also been made by the Royal Victoria Hospital, and the whole is part of a scheme for the encouragement of the medical sciences which the Rockefeller Foundation has most generously helped. The total expenditure on construction and equipment has been a little more than £100,000, or about 2*s.* 6*d.* per cubic foot; the annual budget is estimated at about £13,000. The institute forms a handsome stone building in harmony with the rest of the University, and with the Royal Victoria Hospital, with which it is connected by a subway. Over all it measures about 240 by 70 feet, and this shape secures admirably the efficient lighting, without which a good proportion of a series of laboratories may be practically wasted.

The basement houses the machine room with the cooling plant, &c., the mortuary and chapel (approached both from the hospital and by a separate entrance at the rear of the building), preparation and mounting rooms for museum specimens, students' rooms, and cloak rooms. On the ground floor the visitor is reminded "hic est locus ubi mors gaudet succurrere vitae," and finds the lecture theatre (where porous acoustic tiles most successfully damp any reverberation), a museum, a large demonstration auditorium with two smaller autopsy rooms, a room for the pathological conferences between clinicians and pathologists which are so universal in America, the laboratories and record room for post-mortem and surgeons' specimens, general experimental rooms, and the library. The first floor provides an exceptionally well-lighted students' histological class room, a number of small research laboratories and animal accommodation, while the top floor is occupied by the subdepartment of bacteriology with a large class room and laboratories for routine work and research. Electricity, gas, hot and cold water, and compressed air are carried throughout the building; refrigerating pipes, live steam, and a vacuum are widely distributed. The floors are covered with linoleum on concrete. The whole forms an admirable roomy building in which the pathological work of McGill should flourish still more. It has not been possible at present to make as much accommodation as could be wished for chemical and experimental pathology, but the plans have been so drawn that these extensions may be added later at the north end of the building. We wish Prof. Oertel and his colleagues a happy occupation and a fruitful and prosperous enjoyment of their splendid home.

BERLIN.

From our own Correspondent.)

General Paralysis among Jews.

In the *Zeitschrift für Rassenhygiene* Dr. Bluhm, of Munich, recently reported an investigation into the incidence of general paralysis of the insane among Jews. He stated that of the insane Jews in the Munich asylums 21 per cent. suffered from general paralysis, the percentage among other insane persons being 13. In Eastern countries where Jews marry at an early age the disease is said to be less frequent amongst them. The reason of the greater frequency of paralysis is, in the author's opinion, that the brain of the Jew offers less resistance to syphilitic infection owing to the greater vivacity of the race and the racial preference for life in towns where there are more excitements than in the country; also there is a greater percentage of intellectual workers amongst the Jews. In the Jewish race paralysis usually breaks out at an earlier age than among other races. The disease runs a longer course in Jews than in others, but the duration of life is the same. It is remarkable that of the paralytic Jews 14 per cent. were habitual drunkards, against 11 per cent. of other paralytic patients; this is the more remarkable as alcoholism is less rife among Jews than amongst Gentiles; it seems to mean that a Jew indulging in spirits is especially liable to become paralytic. There is also a difference in the type of paralysis occurring in Jews; the demented form among Jews has an incidence of 31·8 per cent., compared to 74 per cent. in non-Jews; in the depressive form the percentages are 22·7 and 8 respectively, the agitated form 9 per cent., compared to 2 per cent., the megalomanic 25 per cent. as against 12 per cent., while atypical forms in Jews have a percentage of 11·4, compared to 4 in Gentiles. The most striking difference, however, is found in the relative percentages among women, being only 4 per cent. in Jews, but about 30 per cent. in others. The reason is probably that prostitution amongst Jewish girls in Germany is very rare. The author gave also interesting records concerning insanity amongst Jews in general. In the period of 1908 to 1920, 87,486 insane were received in the asylums of Bavaria, of whom 1373 were Jews, being 1·57 per cent. of the total number, whilst Jews number only 0·85 per cent. of the population in Bavaria.

Dogs as Guides for Blind Invalids.

A training school for dogs as guides for blind invalids of the late war was established some time ago. In that school dogs are trained to lead the blinded men through crowded streets and to avoid vehicular traffic. In the training ground of the school are dummy obstacles such as stairs, wire, stones, holes, bridges, and letter-boxes. After a training of six weeks a dog is, as a rule, able to lead a blind man. To accustom a dog to his companion and vice versa, the blind stay for a fortnight on the premises of the school, where rooms and nurses are provided for them. It is indeed striking—and touching—to see those dogs leading blind invalids safely through the streets, guarding them from traffic dangers.

Advertisements of the Medical Press.

The Union of the Medical Press recently held a conference on the occasion of the meeting of the Association of German Medical Men and Naturalists at Innsbruck. After a discussion concerning the agreements between medical authors and the press the conference discussed the question of advertisements of proprietary medicines. It was agreed that advertisements ought not to be received in the medical press without a statement of their ingredients, and in the case of compounds of strong action a statement of the proportion of ingredients had to be given. Advertisements making misleading statements of the chemical composition of the medicament, its efficacy, or its harmlessness were to be refused.

Discussion on Cerebral Tumours.

Before the Munich Medical Society Prof. E. Boström recently read a paper on cerebral tumours, basing his remarks on 72 cases that had been observed by him. The mortality of operated and of unoperated cases had been the same. The best chance of a cure was given by an early diagnosis. Operations for cysts gave favourable results. Headache was prevalent in 50 per cent. of the cases only, choked disc in 25 per cent. Radiographic examination was of value only in cases where a growth occurred in connexion with a bone and in cases with increased cerebral pressure, where the radiogram showed an expansion of the sutures of the skull. In the discussion which followed Prof. F. Sauerbruch stated that the results of an operation were not very favourable in his experience; radical removal of a cerebral tumour had been possible only in seven cases. Apart from the great difficulties of diagnosis and of localisation untoward results were frequent both during and after an operation. A number of patients showed, after the skull had been opened, symptoms of paralysis of respiration and of circulation. Pneumonia due to food entering the air passage owing to the disappearance of reflexes was frequent. The technique of the operation itself was relatively simple, but as the skull opening had to be rather circumscribed a view of the growth was difficult to obtain and was hindered also by the profuse hæmorrhage connected with the operation. Prof. Sauerbruch declined to perform ventricular puncture as devised by Dr. Neisser, because of the possible sequelæ of hæmorrhagic infarcts and lesion of the middle meningeal artery. To be effective the puncture had to be performed in different parts of the brain. Exploratory craniotomy on the principles of explorative laparotomy was to be recommended. Death from increased cerebral pressure might occur, but this happened only in the case of large and malignant growths which would be otherwise fatal even without exploratory craniotomy.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

TWO LARGE SEAPORTS.

THE following table gives some of the principal statistics for the cities of Liverpool and Glasgow for the year 1923:—

Name of city.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Liverpool ..	837,600	24·7	13·6	1·6	1·1	3·4	32	99	3·0
Glasgow ..	1,041,400	25·6	14·3	1·5	1·2	2·3	35	89	6·5

Liverpool.

Dr. E. W. Hope says that in Liverpool a larger proportion of the inhabitants seek hospital assistance in times of sickness than in any other city in the country, a fact which bears testimony to the public confidence in the institutions provided by the municipality and the boards of guardians. Latterly, under existing housing conditions, the claims on these institutions have increased. One of the events of the year was the opening on Dec. 15th of the Carnegie Welfare Centre by Miss Haldane, one of the trustees. Photographs and a description of the new centre are included in the report, and it is already proving a most valuable addition to the maternity and child welfare scheme. Photographs are also included in the report of the new seamen's dispensary, which was opened by the Lord Mayor of Liverpool in January, 1924. The site is admirably chosen for the work. The dispensary is intended to deal primarily with venereal diseases, but other ailments of seamen will be treated, and it will, in fact, serve as a clearing house for the provision of treatment for tropical diseases, &c. The Liverpool Corporation and the neighbouring Mersey-side sanitary authorities are unanimous in their desire to secure powers to compel sufferers from venereal diseases to seek medical advice and to follow the doctor's instructions. Clauses for the purpose of achieving this object have been inserted in the next Liverpool Corporation Bill, and the text of the clauses is given in Dr. Hope's report. The necessity for the provision of a hostel, where young women suffering from venereal diseases can be housed during the infectious stage, has been recognised for some years, and arrangements have now been made with the Liverpool Diocesan Association to provide such an institution for the accommodation of 15 women. The corporation will pay towards its upkeep. With the approval of the Ministry of Health educational propagandism with regard to these diseases is undertaken by a joint committee, the members of which are appointed by the Mersey-side boroughs—namely, Liverpool and Birkenhead, Bootle and Wallasey.

The Liverpool tuberculosis scheme received an important addition when the corporation took over Highfield Sanatorium from the West Derby board of guardians for a period of two years. Arrangements have now been made for the purchase of the building. At the end of 1923 there were 289 patients in residence. An arc-light equipment has been installed at the Fazakerley Sanatorium, similar to those in use at Copenhagen and Stockholm. The type was decided upon after an inspection of equipment in use on the continent, and the methods prescribed by Dr. Reyn, of the Finsen Institute, Copenhagen, are being observed in their essential details. As yet, only surgical tuberculosis has been treated (with encouraging results), as it is recognised that great caution is necessary in the use of the arc light for pulmonary disease. Sun treatment is being used so far as it is applicable in our climate. During the last 12 months a careful trial has been made of the treatment suggested by Sir Leonard Rogers, the leader of the leprosy campaign, which consists, put briefly, in the injection of certain fatty substances derived from cod-liver and other oils with the object of raising the patient's resistance to the tubercle bacillus. There was a considerable increase in the prevalence of encephalitis lethargica; 111 cases were notified with 36 deaths. During the autumn the type of the disease altered somewhat and signs of cerebral irritation became a noticeable feature. More than half the cases occurred under 20 years of age. Over 30 years of age the liability to contract the disease appears to be small, but the case fatality increases rapidly with advancing age. The disease has been principally prevalent in the winter months. In only about 9 per cent. of the cases was a history of contact with a preceding case elicited. One of the most distressing features has been the alteration of the mental condition of the children affected. This change may develop at once or not until a period of months or years after the primary attack, and not infrequently this mental degeneration occurs after mild attacks. The change in the child is so characteristic as to enable a diagnosis to be made retrospectively, and a number of such cases have been reported by the school medical officers. The present condition of 41 children under 15 attacked with encephalitis lethargica during 1923 shows that as yet only seven are normal. During April and May, 1924, 16 cases of enteric fever (paratyphoid B) occurred in Liverpool and other cases in the vicinity. During the previous three years there have only been eight cases of this disease. The cause of the outbreak remained a mystery as all the usual food sources of infection could be excluded. Dr. Hope thinks that the agent responsible for the spread of infection must be one that is widely used but not heavily infected, and one which is more used by children than adults. He has received information that the disease has been recently prevalent in Bolton, Wigan, and elsewhere.

The position in Liverpool with regard to housing is still "unhappy." The provision of 6000 houses by the corporation has not enabled arrears to be overtaken, still less has it met the needs of the growing population. The large increase in the number of families living in single rooms has resulted in the registration of 537 additional houses let in lodgings. Dr. Hope estimates that Liverpool is at present worse off from the point of view of housing accommodation than at the close of 1914 by rather more than 10,000 houses. Although the proportion of house building has been greater than in other cities, the needs of Liverpool appear to be greater than those of any other city. The 1921 Census showed that there were in Liverpool 11,064 families occupying one room only as compared with 3822 in Manchester. The percentage of families in Liverpool occupying one room only was the highest among the Lancashire towns—namely, 6·4. In Manchester the percentage was 2·3. Dr. Hope refers to communications from the Ministries of Health, Pensions, and Labour with regard to the after-care of tuberculosis recommending that steps should be taken in good time to ascertain that the home conditions of patients about to leave the sanatoriums are satisfactory, and points out how impossible it is to comply with the suggestion, and that these communications from the Ministries merely bring into prominence one of the many evils resulting from house shortage. Several pages of the report are taken up with extracts illustrative of the thousands of piteous and insistent letters received from applicants for houses. Dr. Hope points out that the original undertakings of the housing committee are approaching completion and that an amplified scheme should be embarked upon forthwith. The scheme for the provision of a new abattoir, adequate to the needs of Liverpool, which has been discussed for 20 years, has made progress during the year, and Dr. Hope trusts that there will be no further delay in bringing into operation this eminently desirable reform. The site secured near the existing Stanley cattle market has been cleared ready for the erection of the new buildings.

As the result of the working of the milk clauses a considerable improvement has been noted during later years in the sanitation of the cowsheds outside the city. The tables given in the report do not indicate that this improvement has affected the prevalence of bovine tuberculosis. Thus out of 593 "bulk" samples of country milk 62 were found to be tuberculous. This gives a percentage of 10·5 as compared with a percentage of 7·6 during the last 11 years. Out of 309 "bulk" samples of milk produced in the city during 1923 19 were found to be tuberculous. This gives a percentage of 6·1 to be compared with an average percentage of 7·2 during the last 11 years. Dr. Hope is in full agreement with the increasing demand for education of the public in health matters, and instances the value of institutions like the Liverpool School of Hygiene for the purpose.

Glasgow.

Dr. A. K. Chalmers says that by far the most important sanitary occurrence of the year was the confirmation by the Board of Health of the Cowcaddens improvement scheme. At the end of the year 107 families had been displaced from houses in the northern part of this area: 101 of the dis-housed families were accommodated in houses on Hamilton Hill, 79 in two-apartment houses, and 22 in three-apartment houses at rentals of 6*s.* 6*d.* and 7*s.* 5*d.* respectively, as compared with rentals of 4*s.* 8*d.* and 5*s.* 10*d.* for the houses from which they had moved. Thirteen of the dispossessed tenants came from one-apartment houses rented at 3*s.* 7*d.* New one-apartment houses have not been permitted by the Dean of Guild Court since 1916. The tenants are reported to appreciate the advantages of their new dwellings as compared with their old ones, and to have reacted favourably to the healthier environment. A lady official of the Salvation Army, familiar with both the old and the new conditions, notices an increasing sense of self-respect among the girls as a result of the change. Progress with the improvement scheme will depend upon the rate at which new houses can be supplied. The margin of unoccupied houses was only 325 in the year 1923, and one-half are of five apartments and upwards. The excess of births over deaths is about 10,000 annually, and only 1200 new houses are being built each year. Instead of the shortage becoming reduced it is increasing, and Dr. Chalmers estimates that about 3800 houses are required annually instead of 1200. Rooms in Glasgow are bigger than in England. Dr. Chalmers therefore takes as a basis for overcrowding an excess of three persons to a room, instead of two persons to a room, the usual basis in England. He quotes figures from the Census showing that 14,131 one-roomed houses are occupied by from 4 to 6 persons each, 1643 by 7 to 9 persons each, and 62 by 10 to 12 persons each; and that 19,596 two-roomed houses are occupied by from 7 to 9 persons, 2832 by from 10 to 12, and 117 by more than 12. On the before-mentioned basis overcrowding is found to be present in 39,922 houses, equal to 19 per cent. of the total number of houses containing four rooms and under. It was mentioned that rooms in Glasgow are usually bigger than in England, but Dr. Chalmers draws attention to the fact that there is a tendency to reduce the size of the rooms, and he views this tendency with some apprehension. As regards the effect on health, it has been found that the death-rate from all causes in the one-roomed houses is double that in the four-roomed houses, while the phthisis deaths in the one-roomed houses are three times as numerous as those in the four-roomed houses.

The description of the work of the V.D. centres shows a slight reduction in new cases, but an increase in the indoor treatment and in the number of out-patient attendances. Dr. Chalmers expresses his dissatisfaction with the scheme as at present carried out throughout the country for various reasons. He is not satisfied as to whether the reduction in cases is a result of the work of the clinics or merely a recession from post-war prevalence. Again, only a small number of gonorrhœa cases seek treatment. Thirdly, the number of cases which cease treatment before being cured is large. In Glasgow it is about 45 per cent. Again, we are getting no answer to such questions as possible alterations of the type of infection, the effect of social conditions, or the economic strain of under-paid female labour. Is there a return commensurate with the cost, he asks. For instance, more cases of congenital syphilis were reported from the Glasgow centres in 1923 than in 1922. On the other hand, there is a decline during the last three years in the prevalence of ophthalmia neonatorum, but this decline may be due to the use of silver nitrate solution for the eyes of newly-born children which was made compulsory by the C.M.B., dating from January, 1922. One of Dr. Chalmers's chief points is that the establishment of the centres has encouraged libertines, and he cites the figures of the municipal V.D. centres at Glasgow during a recent year. During this year there were 745 new male cases, 359 of whom were undoubtedly primary cases. In the case of 311 there was a history of a previous attack, of subsequent exposure to infection, and of recurrence of symptoms. In 61 cases this sequence of events had occurred for the third time, in 12 for the fourth time, and in two for more than four times. In other words, more than half the total number of these male patients were habitual libertines. Dr. Chalmers thinks that the treatment of venereal diseases, which was farmed out by local authorities as a matter of emergency, should now be taken in hand by the local authorities directly with a view to the comprehensive study of the whole problem of the distribution of venereal diseases. Towards this end notification by name and address is the first step on the programme, but can only be applied effectively to large areas.

A milk-borne outbreak of scarlet fever occurred in January and February and was traced to the child of a dairy-farmer who was found in the desquamating stage of the disease and who was said to have had a "blush" on the skin, a sore-throat, and swollen cervical glands three weeks earlier. Some 23 cases were traced to the milk. An unusual occurrence is mentioned in the case of three children who were infected with diphtheria by playing with a child who was subsequently found to be suffering from conjunctival diphtheria. Dr. Chalmers says that for many years 80 to 90 per cent. of the city's milk has been pasteurised by the "Flash" method, and that with commendable enterprise distributors are installing plant for the "Holder" process in conformity with the new regulations. The bulk of the milk in Glasgow is 20 to 36 hours old before it reaches the consumer, and in order to ensure satisfactory results and the delivery of a milk of low bacterial count a closer coöperation amongst producers, distributors, and retailers will be necessary. During the year 126 samples of mixed milk were taken at the railway stations and ten of these, or about 8 per cent., were found to contain tubercle bacilli.

An interesting report by the senior smoke inspector, Mr. Colin B. Park, shows that determined efforts are being made to reduce the smoke nuisance. It is stated that the atmosphere of Glasgow has been materially improved during the last 25 years. In 1899 and 1900 the intimations of excess smoke amounted to 17·5 per cent. of the chimneys observed, whereas during 1922 and 1923 the intimations only amounted to 1·7 per cent. In the earlier years, too, five minutes black smoke in the hour was deemed to be excess, whereas during the latter years the limit used was two minutes of black smoke.

MENTAL HOSPITALS SERVICE.

Hertfordshire.

IN the annual report for 1923 of the Hertfordshire County Mental Hospital, St. Albans, a slight increase in the numbers of certified insane in this county is recorded. There is, nevertheless, still surplus accommodation. The recovery rate on direct admissions is 38·5 per cent., and the death-rate 6·11 per cent. Although three deaths occurred from dysentery and six from tuberculosis, there is no record of the degree of prevalence of these diseases in the hospital, or, indeed, any reference to the general state of health of its inmates. There is no record of any visit by a Commissioner of the Board of Control. This report appears to be one in which greater space might with advantage be devoted to the therapeutic aspect of the institution's work.

Carmarthen.

It appears in the annual report of the Joint Counties Mental Hospital at Carmarthen that the population of this hospital is increasing, the male side being overcrowded to the extent of 21 cases. This is the more serious since considerable staff reductions took place last year. There are now only two medical officers, including Dr. John Richards, the superintendent, for over 600 patients, and corresponding reductions in the number of nurses leave the wards at certain times with a "dangerously low staff." Correspondence between the Board of Control and the committee of this hospital has taken place on this question, but there is no indication that any steps are to be taken to carry the recommendations of the Board into effect. Other adverse criticisms appear in the report of he visiting Commissioner. No temperature charts are kept for patients who are ill; tuberculous cases are nursed in the ordinary infirmaries where also some of the new admissions are sent; some 35 cases of diarrhœa have occurred, and no steps have apparently been taken to ascertain whether these are dysenteric. Otherwise the hospital has been free from epidemic disease. The maintenance rate for patients in the three counties (Carmarthen, Cardigan, and Pembroke) is now 19*s*. 3*d*. per week.

Barnwood House Hospital, Gloucester.

In the annual report of Barnwood House Hospital for the Insane, Gloucester, for 1923, may be traced the effects of the small-pox epidemic in that city last year. It is not surprising that a considerable falling-off n the admissions took place; with few exceptions, the entire population of the hospital had to be vaccinated. Last year's report recorded the admission of a large proportion of voluntary boarders, and it is now observed that "there is an increasing demand for voluntary admission, but a considerable number of hose admitted are found to be definitely certifiable." No less than 11 such admissions were eventually certified, and with one exception sent to other institutions on certification. A similar difficulty has been encountered at the Manor House, a separate home for cases not requiring certification, the applicants often being found unsuitable for treatment there, and there is ome prospect of amalgamating this house with the main hospital and accommodating certified cases n it. It may be remembered that a similar fate has recently befallen Millfield, a voluntary home in connexion with the Retreat, York. Such a step can only be taken with the greatest regret, but the difficulties of running such a home, and of filling it with suitable cases, are extreme, and we may yet be orced to the conclusion that the key to the effective treatment of mental disease of whatever kind, whether established or incipient, severe or slight, lies n the reorganisation of the mental hospitals themelves. Several innovations are recorded at Barnwood House. There are now classes of instruction for emale patients in Swedish exercises and art needlework. A laboratory is being equipped for routine pathological work, and the medical superintendent, Dr. A. A. D. Townsend, is asking for the appointment of a regular visiting dentist. It is discouraging that of 27 entrants for the preliminary examination of the Medico-Psychological Association only nine were successful; of two entrants for the final, one passed. It has been observed elsewhere that the only means of persuading nurses and attendants to obtain qualification is to make promotion and increases in salary dependent upon it. Possibly the effect of such an order would be that a sufficient staff could not be maintained.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 25TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 10 (compared with 80 last week); scarlet fever, 2143; diphtheria, 1139; enteric fever, 75; pneumonia, 746; puerperal fever, 41; cerebro-spinal fever, 10; acute poliomyelitis, 27; acute polio-encephalitis, 1; encephalitis lethargica, 46; dysentery, 9; ophthalmia neonatorum, 109. There were no cases of cholera, plague, or typhus fever notified during the week.

We understand that the nine cases of acute polio-encephalitis included in the return for the week ended Oct. 18th, as notified from Liverpool, were cases of encephalitis lethargica.

Deaths.—In the aggregate of great towns, including London, there were 7 deaths from enteric fever, none from small-pox, 12 from scarlet fever, 30 from diphtheria, 14 from measles, 37 from influenza. In London itself the diphtheria deaths fell to 5, and the deaths from infantile diarrhœa numbered 26.

The Services.

ROYAL ARMY MEDICAL COLLEGE.

Maj. J. A. Manifold, R.A.M.C., to be Assistant Professor.

ROYAL ARMY MEDICAL CORPS.

Capt. W. E. Tyndall is granted the temp. rank of Maj. whilst empld. as Dep. Asst. Director of Pathology.

MILITIA.

Capt. M. K. Nelson to be Maj.

TERRITORIAL ARMY.

Lt. J. A. L. Loudon to be Capt.

The King has conferred the Territorial Decoration upon the undermentioned Officers: Majors F. W. B. Young, A. Walker, and G. B. Gill; and Capt. E. B. Keen.

ROYAL AIR FORCE.

Flying Officer J. G. Russell is promoted to the rank of Flight Lt.

MEDICAL CANDIDATES FOR PARLIAMENT.

SUCCESSFUL AND UNSUCCESSFUL.

THE following is a complete list to date of medical men entitled to sit in the new House of Commons. In the constituency of the Scottish Universities, for which one of the candidates, Sir George Berry, is a medical man, the poll will not be declared until Nov. 13th.

Members.	*Constituency.*	*Party.*
Dr. Walter E. Elliot	Glasgow (Kelvingrove)	C.
Dr. F. E. Fremantle	Hertford (St. Albans)	C.
Dr. L. Haden Guest	Southwark, North	Lab.
Sir Henry Jackson	Wandsworth, Central	C.
Dr. E. G. Graham Little	London University	Ind.
Sir Richard Luce	Derby	C.
Dr. Alfred Salter	Bermondsey, West	Lab.
Dr. Drummond Shiels	Edinburgh, East	Lab.
Prof. T. Sinclair	Queen's University, Belfast	C.
Dr. Thos. Watts	Manchester (Withington)	C.
Dr. J. H. Williams	Carmarthen (Llanelly)	Lab.

List of Medical Candidates for Parliament.

A list of medical candidates is here given, showing the individual position at the poll, and the number of votes registered. A dagger sign indicates membership of the last House of Commons, while an asterisk indicates that the candidate contested this or some other seat at the last General Election.

Constituency.	Name.	Position at poll.	Votes registered.
Universities.			
London	Dr. Graham Little	1	(1) Ind., 3,202
	Sir John Rose Bradford	2	(2) C., 2,813 (3) L., 1,539
	Dr. F. G. Bushnell	4	(4) Lab., 1,087
Scottish	Sir George A. Berry†	§	§
Queen's, Belfast . .	Prof. T. Sinclair†	U.	—
London Boroughs.			
Bermondsey, West	Dr. Alfred Salter*	1	(1) Lab., 11,578 (2) L., 8,676
Camberwell, North-west.	Dr. H. B. Morgan*	2	(1) C., 9,626 (2) Lab., 9,432 (3) L., 5,138
Hackney, North . .	Dr. Stella Churchill	3	(1) C., 11,975 (2) L., 7,181 (3) Lab., 6,097
Hammersmith, South.	Dr. C. Addison . .	2	(1) C., 12,679 (2) Lab., 8,804 (3) L., 1,393
Islington, East . .	Dr. Ethel Bentham*	2	(1) C., 14,174 (2) Lab., 10,280 (3) L., 7,406
Lambeth, Kennington.	Lieut.-Colonel T. S. Beauchamp-Williams†	2	(1) C., 14,898 (2) Lab., 11,572
Southwark, North	Dr. L. Haden Guest†	1	(1) Lab., 8,115 (2) L., 7,085 (3) C., 3,305
Stoke Newington . .	Dr. G. E. Spero† . .	2	(1) C., 10,688 (2) L., 4,758 (3) Lab., 3,420
Wandsworth, Central	Sir Henry Jackson	1	(1) C., 13,234 (2) Lab., 8,235
English Boroughs.			
Birmingham, West	Dr. R. Dunstan* . .	2	(1) C., 14,801 (2) Com., 7,158
Derby (2 seats) . .	Sir Richard Luce	2	(1) Lab., 27,423 (2) C., 25,425 (3) Lab., 25,172 (4) C., 21,700 (5) L., 7,083
Manchester (Withington)	Dr. Thos. Watts*	1	(1) C., 13,633 (2) L., 10,435 (3) Lab., 2,467 (4) Ind., 236
Oxford	Dr. R. O. Moon . .	2	(1) C., 12,196 (2) L., 6,836 (3) Lab., 2,260
Portsmouth, North	Dr. O. Gleeson* . .	2	(1) C., 17,597 (2) Lab., 10,279
Reading	Mr. Somerville Hastings.†	2	(1) C., 21,338 (2) Lab., 18,337
Walsall	Dr. J. J. Lynch . .	4	(1) C., 15,168 (2) L., 12,734 (3) Lab., 11,474 (4) Ind., 622
Scottish Boroughs.			
Aberdeen, North . .	Dr. Laura Sandeman	2	(1) Lab., 13,249 (2) C., 6,545
Edinburgh, East . .	Dr. Drummond Shiels	1	(1) Lab., 9,220 (2) C., 6,105 (3) L., 5,625
Glasgow (Kelvingrove)	Dr. W. E. Elliot†	‖	(1) C., 18,034 (2) Lab., 12,844
English Counties.			
Hertford (St. Albans)	Dr. F. E. Fremantle†	1	(1) C., 18,004 (2) Lab., 8,682
Lancaster (Stretford)	Dr. J. Robinson . .	2	(1) Const. 20,826 (2) Lab., 11,520
Welsh Counties.			
Carmarthen (Llanelly)	Dr. J. H. Williams†	1	(1) Lab., 20,516 (2) L., 18,257
Scottish Counties.			
Argyll	Dr. I. H. MacIver	3	(1) C., 9,240 (2) L., 6,211 (3) Lab. 4,532
Dumfries	Dr. W. A. Chapple†	2	(1) C., 12,718 (2) L., 8,472 (3) Lab., 6,342

C., Conservative. Const., Constitutionalist. L., Liberal. Lab., Labour. Com., Communist. Ind., Independent.
‖ The poll will not be declared until Nov. 13th.
U., Unopposed.

Foreign Decorations.—Dr. Arthur Ferguson MacCallan, C.B.E., formerly Director of Ophthalmic Hospitals, Egyptian Department of Public Health, has been granted His Majesty's Royal licence and authority to wear the Insignia of the Second Class of the Order of the Nile, conferred upon him by the King of Egypt in recognition of valuable services rendered.

GENERAL MEDICAL COUNCIL: ELECTION OF DIRECT REPRESENTATIVES.

England and Wales.

We published last week the election addresses of five candidates for the four vacancies on the Council. Five other nominations have now been sent in and the list is not finally closed as we go to press. The additional candidates are: Dr. Henry Jasper Cardale (London), Dr. Harry Francois Devis (Downend, near Bristol), Dr. Robert Fielding-Ould (London), Dr. Edward Andrew Gregg (London), and Dr. Gordon Reginald Ward (Sevenoaks). We have only received as yet the election address of Dr. Fielding-Ould. which runs as follows:—

Dear Sir (or Madam),—Nominated as a candidate for the approaching election of Direct Representatives in the General Medical Council I have the honour to ask for your support and vote.

The ever-increasing interest and activity of the State in matters connected with Public Health will in the near future, as in the recent past, bring forward many matters of serious professional importance—matters of vital interest to the Profession as a whole, but especially to the General Practitioner.

Until we have before us the Report of the Royal Commission now sitting on National Health Insurance it is impossible to say what changes in medical affairs may result from its deliberations, but it is clear that there has never been a time in the history of Medicine when adequate representations of the General Practitioner on the ruling Council was more necessary. In my deliberate opinion four Direct Representatives in a body numbering 37 cannot be regarded as *adequate* representation.

It is my conviction that increased representation on the Council of the general mass of practitioners would be of the greatest possible advantage to the Profession as a whole, and I believe that, in these progressive days, it is necessary that the powers of the, and influence of the, Council should be increased and stand upon a broader basis so that a body truly representative of the Medical Profession may be gradually evolved.

That any group should nominate and secure the election of all four Direct Representatives is contrary to the best interests of the Profession and to the spirit of the Act of Parliament. The British Medical Association succeeded in doing this at the last Election and is seeking to repeat the manœuvre on this occasion. I submit that Direct Representation must not be regarded as the monopoly of any one organisation, as it is in danger of becoming.

My long connexion with the National Medical Union—the Non-Panel Practitioners Organisation—is a guarantee that the interests of this important section of the Profession will be safeguarded, and in the event of my election your Direct Representatives will no longer be open to the criticism in that they are representatives only of a camarilla.

The knowledge and experience gained in 30 years of public and professional life secure that as your Representative I shall be fully qualified and trained to voice successfully your opinions and advance your ideals. My legal training as a Barrister-at-Law will be an advantage in elucidating the many problems with which the General Medical Council is constantly concerned.

To watch the influences, which often by subterranean methods aim at the socialisation of the Profession and, so far as is possible and desirable, to avert their evil consequences in the interests of the whole mass of the people, shall be my constant and earnest endeavour.

The improvement and reorganisation of Medical Education I have much at heart and I shall, if given the opportunity, do all that is possible to promote and develop improved facilities for post-graduate study. The Medical Education of women shall have my special attention.

The dangers of unqualified practice must be curtailed. I submit that your Representatives should give immediate attention to this matter, and in the event of election it is my intention so to do.

Should you do me the honour of electing me as one of your Direct Representatives, it will be my firm determination to do everything in my power to maintain the efficiency and prestige of the Medical Profession and to fully justify your confidence.

Robert Fielding-Ould, M.A., M.D. Oxf.,
M.R.C.P. Lond.,
Barrister-at-Law, Inner Temple.

9, William-street, Knightsbridge, S.W.,
October 15th, 1924.

Dr. JOHN BROWN, an independent candidate in 1919, who wrote last week that he was not standing, now writes :—

At the request of many of the Blackpool doctors I have consented to be nominated as one of the four to be elected at the forthcoming election. At the election, 1919, there were 15 duly nominated. Only those nominated by organised Medical Associations were elected. My nomination has been signed, and I hope to publish my address in due course in the medical papers. I have no Committee, nor any funds but my own. It is felt that Lancashire ought to have one of the four. The population is about 5,000,000, and there are about 4000 electors. I am a Member of the British Medical Association and my appeal is also to those of the 14,000 who are non-members whose free and independent suffrages I seek. My experience is panel and general practice ; also as Medical Officer of Health from 1877 to 1914 for the Borough of Bacup, Poor-law, Post Office, School M.O., &c., are proofs of my general knowledge.

JOHN BROWN, M.D., D.P.H.

Hornby-road, Blackpool, Nov. 3rd, 1924.

IRELAND.

Dr. LEONARD KIDD, who has been Direct Representative for Ireland since 1906, has addressed the following letter to the registered medical practitioners of Ireland :—

LADIES AND GENTLEMEN,—You are probably aware that owing to the establishment of the Irish Free State the relations of Irish Medical Practitioners to the British Medical Register and to the General Medical Council are in suspense, and that unless the Free State and Imperial Governments agree that the old relations of Irish Medical Practitioners to the British Register and General Medical Council shall be resumed and continued "the relations and responsibilities of the General Council of Medical Education and Registration of the United Kingdom in future will be restricted to Great Britain and Northern Ireland. The Universities and Licensing Bodies and the Medical Practitioners of Southern Ireland will no longer be entitled to representation on the Council. The Medical qualifications granted in the Irish Free State will no longer entitle the holders to be registered in the British Register."

In order to provide further time for consideration of the matter the Dail has introduced a Bill to arrange for the continuance of the old conditions and relations for a year. If the Free State at the end of the year decide to establish their own Medical Register and Council, the Direct Representative elected in November would presumably be in office for one year only (instead of the normal five years), but if on the other hand it is decided to resume the old relations, the election in November would be for the full period of five years.

My term of office as Direct Representative for all Ireland expires on Dec. 31st, 1924. In compliance with the Medical Acts the election of my successor thus rendered necessary must be in November, 1924.

Owing to the expense incurred to the Irish Branch Council, it is desirable there should not be a contested election in November, 1924, and possibly others in November, 1925, for a Representative on the Free State Council, and in Northern Ireland for a Representative on the British General Council.

It has been suggested to me that I should offer myself for re-election in November, 1924, even on the chance that my term of office would be for one year only. This I am prepared to risk, and wish to add that if there is only one other candidate nominated, in order to avoid a contested election, I am prepared to withdraw if a majority of my nominators so desire, but if more than one other candidate is nominated a contest could not be prevented and I shall remain a candidate.

Subject to the above conditions the following have kindly consented to nominate me :—

In Dublin.—Sir John Moore, Sir E. C. Bigger, Dr. J. O'Carroll, Dr. T. Nesbitt, Sir T. Myles, Dr. L. Cassidy, Dr. Seton Pringle, Dr. T. Gordon, Sir A. Chance, Dr. H. Drury, Dr. J. Spears, Dr. E. Magennis, Prof. D. J. Coffey, University College, Prof. A. F. Dixon, Dublin University, Sir Robert Woods, Dr. Walter G. Smith, Dr. H. Bewley.

In Belfast.—Colonel A. Fullerton, C.B., Dr. G. Robb, Dr. W. Caldwell, Dr. H. P. Malcolm, Dr. R. W. Leslie, Colonel T. I. Sinclair, C.B., Dr. H. L. MacKisack, Dr. J. Campbell, Dr. J. A. Craig, Prof. W. J. Wilson.

In the Provinces.—Dr. T. Tate, Downpatrick : Dr. Macbride, Castlebar ; Dr. Warnock, Donegal ; Dr. Mills, Ballinasloe ; Dr. Johnston, Lisburn ; Dr. Thompson, Omagh ; Dr. Meagher, Tullamore ; Dr. Dennis Walshe, Graigue ; Dr. Darling, Lurgan.

Instead of issuing an address which might in present circumstances have the undesired effect of introducing controversial matters, I have decided to refer very briefly to the Constitution and duties of the Council, matters of which many medical practitioners have little knowledge, they and the public often confusing it with the Council of the British Medical Association.

[Here follows a brief sketch of the duties of the General Medical Council in respect of education, registration, discipline, and the British Pharmacopœia concluding : "The Council is neither a Parliament for making professional laws, nor a Union for professional interests. It exists solely for the safeguarding and protection of the public."]

To members of the Poor-law and other Medical Services it may seem disappointing that I make no reference to the disabilities under which they serve, their inadequate salaries, the want of superannuation, the need for an M.O.H. for each county, and so forth. These are all matters that have my entire sympathy, and I can claim to have taken no small part in having them brought under public notice and to have done my best to assist in their redress. They are, however, matters quite outside the functions of the General Council and I have therefore now, as in my former contested elections, refrained from reference to them—indeed to suggest that the Council could mitigate the disabilities complained of would be mere deception. The remedy lies not through the Medical Council but by every practitioner in Ireland joining one or other of the Medical Associations now so badly supported.

L. KIDD, M.D.,
Past President, Irish Medical Association
and of the Ulster Branch B.M.A.

Enniskillen, October, 1924.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the committee of this Fund 57 cases were considered and £673 voted to 47 applicants. The following is a summary of some of the new cases relieved :—

Widow, age 45, of M.D. Edin. who practised in Leeds and died from influenza and pneumonia after two days' illness this year. Applicant is left with three boys, ages 11, 6, and 3. Her total income is £140 per annum from investments and £5 per week from two paying guests. She is very anxious about the children's education and asks the Fund to help with school fees for the second boy. A small grant was made and the case handed over to our Guild.

Daughter, age 50, of L.R.C.P. and S. Edin. who practised in Flint and died in 1915. Applicant is asking the Fund to help her, as owing to lack of work and often not having the means to seek work or materials to do fresh work for sale she is handicapped. She is an artist and was employed by a motor firm which unfortunately failed, thus throwing her out of employment. Her rent is 13*s.* 6*d.* per week. From January to April she managed to make £1 per week but since it has only been 10*s.* Voted £10.

Widow, age 61, of F.R.C.P. Edin. who practised in Middlesex and died in August last. The practice was chiefly a panel one and the applicant received £200 for the goodwill, but after paying expenses only £15 is left. An annuity of her late husband's died with him and she has only £26 per annum. Voted £5.

Daughter, age 79, of M.R.C.S. Eng. who practised at Chelmsford and died in 1866. Applicant has cataracts in both eyes and has fractured her left wrist. This case was sent to the Fund by The Gentlefolks Help, who are only able to help temporarily by making her income up to £1 per week. She receives £7 10*s.* from investments and the Old Age Pension. Voted £5.

Widow, age 46, of M.R.C.S. who practised near Sheffield and died in 1913. While her three children are at school the applicant undertakes private nursing, but she finds it difficult to pay for the education of her youngest girl, aged 11, who, up to last term. had her school fees paid by a friend. This help has now ceased, The last 12 months applicant received £130 from friends, £41 from investments, £25 from nursing. Voted £12 10*s.* and referred to our Guild for a supplementary grant.

Daughter, age 79, of M.R.C.S. Eng. who practised in Surrey and died in 1871. Through the failure of a boarding house which applicant had taken she lost all, including the furniture. Only income the Old Age Pension and her rent is 3*s.* per week. Voted £30 in 12 instalments and a special grant of £5.

Daughter, age 47, of M.R.C.S. Eng. who practised in Surrey and died last month. Applicant's late father was in receipt of a Fund annuity of £30. Applicant suffers from ill-health caused by spinal curvature, and weak heart succeeding 2 years St. Vitus's dance. Quite unable to work and dependent on sister who is an artist. They hope to carry on the house and have boarders. Voted £20 in two instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Royal Medical Benevolent Fund Guild.—The offices and workrooms of the Guild have been moved to 58, Great Marlborough-street, London, W. 1, where parcels of clothing, &c., will gladly be received.

Correspondence.

"Audi alteram partem."

THE LEAGUE OF REMEMBRANCE (1914–1919).

To the Editor of The Lancet.

Sir,—On this, the sixth anniversary of the Armistice, it gives us great pleasure to testify to the activities of the League of Remembrance (1914–1919). Having now had several years of experience of the work of the League, we are in a position to form an opinion of its usefulness. It confers practical benefits to all institutions connected with the health of the nation which care to seek its assistance. This opinion is based not only on an inspection of the work carried on at the League of Remembrance, but also on our practical experience from the hospital point of view of its value in the work of the wards. Hospitals, infant welfare centres, and organisations of a similar kind have only to send materials and pattern, and the League makes them up into the finished article required, without making any charge for its services. We have personally inspected the workrooms; the specially equipped department in which the surgical dressings are made receives our warmest commendation, as also do the hygienic and aseptic principles which are exercised throughout the whole establishment. We can, moreover, testify to the promptitude, accuracy, and excellence with which the work is performed. The League of Remembrance, a continuation of the War Hospital Supply Depot movement, is, we believe, the only institution of the kind in the world. It has proved of great service to the hospitals and the number of appeals for help is continuously increasing. These appeals are straining its present resources to the utmost, and we strongly recommend to public inspection and support this organisation, which has taken as an integral part of its business of remembering, the relief of the sick and suffering. All communications should be addressed to Mrs. E. H. Gibson, C.B.E., Honorary General Manager, League of Remembrance (1914–1919), 1, Marlborough Gate, London, W. 2.

We are, Sir, yours faithfully,

William Arbuthnot Lane.
Arthur Sloggett.
Robert Hill.
James Purves-Stewart.
Alfred Fripp.
Joseph Skevington.
Robert Jones.
Frank Colyer.
Alfred J. Rice-Oxley.
H. J. F. Simson.
John Murray.
C. Knox-Shaw.
R. H. Jocelyn Swan.
Herbert Smale.
Leslie Paton.
Marian Vaughan.

November, 1924.

PRURITUS ANI.

To the Editor of The Lancet.

Sir,—Dr. Louis Savatard in his very interesting and practical article on the treatment of this affection rightly insists on the importance of determining, in every case of anal pruritus, its ætiology before starting the treatment. I should like to call attention to a type of pruritus which is not mentioned in Dr. Savatard's paper—namely, pruritus of mycotic origin, which I described[1] some time ago. During the last 12 years I have had the opportunity of examining and investigating 54 cases of pruritus ani, and in 11 of them I have grown cultures from scrapings of the ano-perianal region, using mycological methods of cultivation—*Epidermophyton cruris* Castellani 1905 (*E. inguinale* Sabouraud 1907), in eight cases; *E. rubrum* Castellani 1909, in two cases; and a *Trichophyton* not yet classified in one case.

These fungi apparently remain dormant in the ano-perianal region for a long time, causing severe pruritus, but practically no objective symptoms; though if the region is examined carefully, minute, slightly raised, red, infiltrated patches may not rarely be seen. An eczematous dermatitis due to scratching may also develop, and a secondary streptococcic infection may become engrafted on the mycotic condition. This mycotic type of pruritus ani may be compared with the well-known pruritus interdigitalis pedum of mycotic origin, in which the pruritus is very severe, though objective signs of an epidermophyton infection are often absent. None of my cases presented active symptoms of Dhobie itch (tinea cruris) of the inguinal region, but six gave a history of having suffered from it some years previously; two of the cases were suffering from pruritus interdigitalis pedum and in both cases *E. cruris* was isolated from the scrapings of the skin of the toes.

In my experience pruritus ani of mycotic origin has no tendency to spontaneous cure. The fungus remains in the perianal region indefinitely, practically dormant, but giving rise to severe pruritus, which, however, may stop completely for certain periods of time. As regards treatment I have found that silver nitrate is fairly efficacious (arg. nitr. gr. xv., spir. æther. nitr. ℥i.); but it should be applied with great care. An ointment containing 2 gr. of chrysarobin to the ounce of vaseline is sometimes effective. This, too, should be used with great care. Painting the parts with a strong lotion of potassium permanganate (gr. xxx. to water ℥i.) is useful in certain cases, also an ointment containing salicylic acid and sulphur (gr. xv. of each to one ounce of vaseline). When an eczematous dermatitis due to scratching is present with severe acute symptoms of inflammation, a soothing treatment should be used first, such as lead lotion, to be followed by the antimycotic measures when the acute symptoms have disappeared. In two recent cases I have obtained excellent results by using the Dhobie itch ointment, first introduced by my friend, Dr. W. E. Deeks, medical manager of the United Fruit Company of America. The formula is as follows: Salicylic acid 4 parts, bismuth subn. 10, mercury salicyl. 4, oil of eucalyptus 10, vaseline and lanolin sufficient to make up to 100 parts.

It is interesting to note that Dr. Deeks found long ago that this Dhobie itch ointment had a very beneficial effect in many cases of pruritus ani, although the existence of a mycotic type of pruritus was not known at that time. I am, Sir, yours faithfully,

London, W., Nov. 3rd, 1924. Aldo Castellani.

SPIRITUAL HEALING.

To the Editor of The Lancet.

Sir,—The conclusion of your interesting leader with this title would seem to be that if "cures" occur, then there can be no question but that they are produced by "emotional" rather than "spiritual" factors; that the cases so cured are none other than neuroses, and the average medical man "can by ordinary techniques effect identical cures himself." You support your thesis by bringing forward the supposed cures wrought by Mormonism, Dowieism, &c., and your article would seem to be inspired by the recent Anglican demonstrations of spiritual healing at Bradford. Surely it is somewhat strange to base the conclusion of your article on such facts and neglect the largest religious body in the world, the Catholic Church, which from the very earliest times has claimed that definite cases of true "spiritual healing" do occur.

There is excellent evidence for the cure of cases which cannot possibly be reckoned as functional. Take, for instance, the celebrated case of De Rudder Oostacker in Belgium who was cured on April 7th, 1875, of an ununited fracture of the left leg which had existed for more than eight years; or that of Marie Borel at Lourdes in 1907, in whom six pyostercoral fistulæ existing in the right lumbar region, through which for five months before going to Lourdes the whole contents of the intestinal canal passed, healed there in less than 48 hours. The evidence for these two cases as well as others equally good can be found in the English translation of Dr. Le Bec's book,

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[1] Brit. Med. Jour., 1923, ii., 1040.

"Medical Proof of the Miraculous," published by Harding and More. About the former, Sir Bertram Windle, M.D., F.R.S., recently wrote: "I am convinced that the evidence is as conclusive as can possibly be obtained in any case where human beings are witnesses, and in another line would hang the most respected man in England for murder." Again, each year some processes of canonisation occur at Rome. For canonisation four miracles have to be proved as having occurred after death at the intercession of the person canonised; these cases are submitted to an exceedingly strenuous medical examination, the best medical expert evidence available being used.

The whole question of miraculous cures rests on the validity of the evidence, but to discuss the matter of spiritual healing and leave out Catholic evidence is surely analogous to playing Hamlet and eliminating the Prince of Denmark.

I am, Sir, yours faithfully,
DOM FRANCIS IZARD, O.S.B., M.R.C.S., L.R.C.P.
Abbaye de St. Benoit, Maredsous par Maredret, Prov. de Namur, Belgique.

*** The points courteously raised by Dom Francis Izard were discussed in a leading article in THE LANCET of 1920, ii., 307, and in a review of the English version of Dr. Le Bec's book in THE LANCET, 1922, ii., 331.—ED. L.

THE DEGREE OF M.D. BRUSSELS.

To the Editor of THE LANCET.

SIR,—I have recently returned to London from Brussels, and have had several interviews with the University authorities, in order to discuss the reopening of the "Scientific" Degree of M.D. Brussels to foreign graduates, with the following result: All candidates, however well qualified, will be required to submit their degrees or diplomas for consideration to the Secretary of the University and be prepared to spend at least one year at the University, attending the lectures, clinics, and practical work before being allowed to enter for the examinations. These are conducted in French, and there are no papers. The standard of the "Scientific" M.D. is exactly the same as the "Legal" M.D. obtainable only after seven years' residence, but it does not carry with it the right to practise in Belgium. Each case will therefore be judged on its own merits. To give an example: if the candidate held the diploma of M.R.C.P. Lond. or F.R.C.S. Eng., he would only be required to put in nine months residence in Brussels, but if he was the holder of an Indian diploma he might have to put in two or even three years residence according to the standard of the diploma he submitted for consideration by the University authorities. The fees for the year are: Courses, 525fr.; examinations, 110fr.; laboratory fees, 250fr. The degree of M.D. Brussels is thus within the reach of any candidate qualified to practise in his own country, who will learn French, and put in nine months residence at the magnificent University which has just been opened in Brussels.

I would be glad to render assistance in negotiating with the University to any candidate who is desirous of entering for the examinations under these new conditions.

I am, Sir, yours faithfully,
ARTHUR HAYDON, M.D. Brussels,
Hon. Secretary, the Brussels Medical Graduates' Association.
10, Sussex-gardens, Talbot-square, Hyde Park, W.2,
Nov. 4th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—Relying on a Board of Education report which four years ago discussed the Dental Acts Committee, I appear to have been led into an under-estimate of the number of dentists. Sir George Newman there stated: "For all practical purposes there are some 3000 practising dentists in England and Wales, distributed unequally and mainly concentrated in towns." It appears that there are now over double that number fully qualified in every respect, and as many again whose qualification is shown by the fact that their names are on the Register.

The number of dentists, however, is one of the relative "trivialities" to which I referred in my previous letter. It has little to do with the dental hygienist as a promising advance in social care from the standpoint of the educational administrator. He seeks what I have called the maximum result in public health at the minimum cost, and is asking whether it is necessary to employ officers who have gone to the cost in money and time of a full training in all the possibilities of disease and disorders of the teeth and their substitutes, and the greater part of whose acquirements will be lost to the community if wholly employed in the routine work of school dentistry.

The suggestion is that the routine, which is at least nine-tenths of hygienic dental instruction and care of school-children, according to the instructions of the dental and medical staff, can be rendered cheap and accessible to all, by training for a short time, and only for the special purpose, these dental nurses or hygienists who can be trusted to do the routine work on their own responsibility and to refer unusual cases to the dentist. Further, it may be asked are there any risks which are numerous or serious enough to negative this work in the form which Dr. Barwise suggests? That is the real topic for discussion. At present it has not been discussed, and administrative action which many, including myself, think entirely unjustified, holds up a great advance. It would be worth while if some of the objectors would set out the grounds of their objection fully and completely.

I am, Sir, yours faithfully,
JAMES KERR.
Mecklenburgh-square, W.C., Nov. 2nd, 1924.

TREATMENT OF HÆMORRHOIDS BY PITCH TAKEN INTERNALLY.

To the Editor of THE LANCET.

SIR,—From Dr. Webber's note on this subject in THE LANCET of August 9th it would appear that the value of this practice is not generally recognised. I became acquainted with the use of pitch for this purpose more than 40 years ago. Since then I have constantly employed this treatment in nearly all such cases that presented themselves to me, and the result has been almost invariably successful and the improvement so rapid that, as a rule, troublesome symptoms have disappeared in a week or ten days. As far as I know, relapses and recurrences have not taken place and very few, if any, have required an operation afterwards. I am accustomed to prescribe pitch—i.e., *Pix liquida* (Stockholm tar) with an equal weight of powdered liquorice in 5-gr. pills, three or more to be taken daily. I find that Meadow's "Prescriber's Companion (1886)" says that capsules of *Pix liquida* are used extensively on the continent for hæmorrhoids and cystitis. This book also gives a pil. picis similar to mine, but it is not clear whether it is made of *Pix burgundica* or *Pix liquida*, and no uses are given. It would be interesting to know whether there is any difference in the action of pitch (as apparently administered to Dr. Webber) and *Pix liquida*. I am told by seafaring men that Stockholm tar is often employed as a local application for piles at sea. Is it too vague a speculation to suppose that the use of pitch and tar for this complaint is of maritime origin? Notwithstanding the tough insides of hardened sailors, the constant use of very coarse food in the protracted voyages of former days must have made piles a very common complaint, and this must have led to the accidental discovery, something after the manner of the Chinaman and roast pig, of a remedy close at hand. I should like to add that I find cold water and glycerine much more useful and pleasant for local application than the standard ung. gallæ c. opio.

I am, Sir, yours faithfully,
F. LUCAS BENHAM, M.D., M.R.C.P.
Semaphore, S. Australia, Sept. 26th, 1924.

Medical News.

University of London.—The second of four lectures on Enzymes will be given by Prof. John Mellanby, M.D. (Professor of Physiology in the University), at St. Thomas's Hospital Medical School, Albert Embankment, S.E. 1, at 4.30 P.M., on Thursday, Nov. 13th. The remaining two will be given on Nov. 20th and 27th respectively.

The Schorstein Memorial Lecture will be delivered by Sir Arthur Keith, F.R.S., on Wednesday, Dec. 17th, at 4.15 P.M., in the Anatomical Theatre of the London Hospital Medical College, Turner-street, Mile End, E. 1. The subject is the Clinical Importance of the Bulbus Cordis. The lecture will be illustrated by lantern slides. Members of the medical profession are invited to attend.

Sir Cuthbert S. Wallace has been elected Dean of the Medical Faculty of the University of London for the period 1924–26.

University College Hospital.—Three lectures on the History of Medicine will be delivered at the Hospital Medical School, Gower-street, W.C. 1, by Dr. Charles Singer on Thursdays, Nov. 20th and 27th, and Dec. 4th, at 4.15 P.M. The subjects are: (1) Recent Light on the Origin of Syphilis; (2) the Beginning of Anatomical Study; (3) the Scientific Work of Robert Koch. The lectures are open to all medical students of the University of London.

University of Bristol.—At a special Final Examination for the degrees of M.B., Ch.B., Part II. (Forensic Medicine and Toxicology only), completing examination, Robert H. Dummett was successful.—At a special Final Examination for the diploma in Dental Surgery the following candidates were successful: William B. Bowrey, William H. Greet, Daniel Griffiths, Cyril H. Hill, and William H. Phillips.

Royal College of Physicians of London.—An ordinary Comitia of the College was held on Oct. 30th, the President, Sir Humphry Rolleston, being in the chair. —The following candidates, having passed the required examination, were admitted as Members of the College: Drs. Stanley Batchelor, Davis E. Bedford, Jyotish Chandra De, William D. Forrest, Malcolm K. Gray, Anis Salama, Kenneth J. L. Scott, and Terence W. Turner.—Licences to practise physic were granted to 245 candidates who had conformed to the by-laws and regulations and passed the necessary examinations. The following are the names and schools of the successful candidates:—

C. H. Ackroyd, Leeds; F. N. Adams, St. Bart.'s; Iris I. G. Adams, St. Mary's; C. Adamson, Cambridge and Durham; B. Adlington, King's Coll.; G. L. Alexander, St. Bart.'s; A. J. Amor and S. M. Anderson, Middlesex; T. F. Anderson, Cambridge and Univ. Coll.; L. V. Angel and H. Aukland, Liverpool; Georgette Bachrach, Univ. Coll.; J. M. Bailey, St. Thomas's; H. C. J. Ball, St. Bart.'s; G. W. Bamber, Cambridge and Univ. Coll.; L. J. Barford, Oxford and Guy's; Alison E. M. Barnaby, Royal Free; C. F. J. Baron, St. Bart.'s.; R. M. Barron, St. Thomas's; S. A. Beards, London; L. F. Beccle, Guy's; A. E. Beith, St. Bart.'s; P. C. Bennison, S. Berman, and E. H. J. Berry, Guy's; A. G. Bewes, St. Thomas's; H. E. Blake, Guy's; R. H. Boggon and A. J. S. L. Boyd, St. Thomas's; W. H. Bradfield and J. H. Broadhead, Guy's; G. C. W. Brown, E. Buchler and G. H. Buncombe, St. Bart.'s; N. F. C. Burgess, Guy's; M. Byala, Liverpool; A. Canard, Cape and Guy's; T. E. Cawthorne, King's Coll.; P. F. Chandler, London; W. T. R. Chapman and F. W. Charman, King's Coll.; K. R. Chaudhri, St. Mary's; W. J. B. Chidlow, Liverpool; Florence C. Churcher, Univ. Coll.; S. Cieman, Toronto and Guy's; T. A. Clarke, Liverpool; E. E. Claxton, St. Bart.'s; I. Cohen, Univ. Coll.; W. R. F. Collis, King's Coll.; W. S. C. Copeman, St. Thomas's; J. W. E. Cory, King's Coll.; A. B. Cowley and B. W. Cross, St. Bart.'s; B. Crosthwaite, Durham; W. I. Daggett, King's Coll.; A. A. Dalby, Guy's; A. F. C. Davey, Manchester; D. Davies, Guy's; D. J. Davies, Middlesex; E. W. P. Davies, Cardiff and Westminster; L. F. Davies, Guy's; Kathleen Davies, Charing Cross; F. M. Deighton, Univ. Coll.; G. W. S. de Jersey, St. Thomas's; P. H. Diemer, St. Bart.'s; J. M. Dobie, St. Thomas's; W. A. Drake and C. S. Drawmer, St. Bart.'s; J. Dreadon, Otago; W. A. D. Drummond, Dundee; G. D. Drury, St. Bart.'s; H. A. Dunlop, Westminster; J. D. Durance, St. Mary's; S. F. Durrans and D. F. Durward, Guy's; H. C. Edmunds, King's Coll.; J. T. R. Edwards, St. Bart.'s; Josephine O. Ellen, Charing Cross; J. B. Ellison, St. George's; Marguerite Elman, St. Mary's; H. G. English, Univ. Coll.; A. J. Enzer, St. Bart.'s; J. A. Evans, Sheffield and Charing Cross; J. P. Evans, St. Mary's; Sarah Evans, Charing Cross; W. Evans, London; W. G. Evans, St. Mary's; N. J. Everard, Sheffield; S. A. M. Fam, King's Coll.; W. J. C. Fenton, F. E. Fox, and D. Frost, London; G. A. Fulton, Liverpool; J. H. Gaddum, Univ. Coll.; H. C. Gage, St. Mary's; J. A. Galletly, Middlesex; J. Gaughan, Liverpool; M. Geaney, Sydney and Middlesex; N. T. Glynn, Liverpool; S. Goldstein, Westminster; Minnie Gosden, London; B. Green, Charing Cross; F. G. Greenwood, St. Bart.'s; Elsie C. Griffin, Madras and Charing Cross; H. F. Griffiths, London; J. I. Griffiths, Univ. Coll.; J. F. Hamber, King's Coll.; A. C. Hampson, Guy's; C. L. Harding, St. Bart.'s; H. E. Hargreaves, Charing Cross; Iris M. Harmer, Univ. Coll.; W. E. Heath, St. Thomas's; Margaret R. Hereford, Royal Free and St. Mary's; W. A. Hervey, St. Bart.'s; A. H. Heyworth, Manchester; F. Hoffstein, Charing Cross; J. G. Hume, St. George's; W. E. Hunter, Manchester; D. S. Huskisson, Guy's; H. V. Ingram, Durham; Adele H. Jacob, Royal Free; H. N. James and Beatrice Jervis-White-Jervis, St. Mary's; H. A. Johnson, Birmingham; R. S. Johnson, St. Bart.'s; I. L. Johnstone, Toronto and Middlesex; Enid M. Jones, Cardiff; F. M. L. Jones, London; J. D. Jones, Liverpool; R. D. Jones, Middlesex; R. M. Jones, Guy's; Doris E. Joscelyne, Bristol; W. E. Joseph, St. Thomas's; H. Joules, Middlesex; C. J. Jowett, Manchester; R. P. S. Kelman, Middlesex; C. E. Kilminster, St. Thomas's; A. J. King and G. King, London; J. F. L. King, St. Bart.'s; F. H. K. Knight, Guy's; Marjorie E. Knowles, Leeds; Nancy T. Lancaster, Univ. Coll.; R. L. Lancaster, London; S. W. Lane, St. Mary's; Mary K. Lawlor, King's Coll.; C. H. Lee, London; Nora Leesmith, St. Mary's; J. Leitch, Charing Cross; T. C. Lewis, St. Bart.'s; E. I. Liberman, Guy's; K. S. Lim, Hong-Kong and Univ. Coll.; D. T. Lloyd, St. Bart.'s; E. O. Lloyd and W. E. Lock, Middlesex; G. K. Loveday, St. Bart.'s; M. F. B. Lynch, London; L. H. Macdonald, Birmingham; H. B. Macevoy, St. Thomas's; D. M. Mackay, Calcutta and Middlesex; R. R. Mackenzie, Guy's; H. Maclachlan, Guy's; R. B. McVicker, St. Thomas's; J. L. B. Marais, St. Bart.'s; G. R. Marcano and D. P. Marks, St. Thomas's; F. March, Guy's; F. Martyn, London; Gertrude M. Mayhall, Leeds; J. D. Mills, Oxford and St. Thomas's; F. G. Mogg, Bristol; Frances C. Nicklin, C. T. Norris, and T. J. O'Donnell, London; G. C. B. Oliver, St. Mary's; L. E. Owen, Guy's; W. B. Owen, Middlesex; M. Y. Paget, Univ. Coll.; T. B. Pahlajani, Bombay and Charing Cross; A. E. G. Parry, Birmingham; Sybil de H.-R. Pattison, London; M. A. Paul, King's Coll.; C. E. Pearsons, St. Bart.'s; Annie Pichaimuthu, Madras; P. J. J. Pienaar, Cape and St. Thomas's; J. E. Piercy, Alberta and Guy's; B. Pollard, Middlesex; F. D. S. Poole, St. Bart.'s; Beatrice M. Powell, Royal Free and Charing Cross; C. V. Powell, Bristol; L. N. Pyrah, Leeds; Violet A. Quilley, Royal Free; S. Rachmantzik, Middlesex; F. C. Read, King's Coll.; S. F. Reynolds, Charing Cross; W. Richards, St. George's; D. Riley, St. Thomas's; W. G. Roberts, Guy's; C. H. H. Robertson, London; A. B. Robinson. St. Thomas's; W. F. Roper, Guy's; Annie E. G. Rowlands, Univ. Coll.; C. Sabhapati, Madras; J. H. Saint, Durham; F. R. Sandford, Cambridge and Middlesex; H. B. Savage, St. Bart.'s; F. W. Schofield, Guy's; C. M. Scott, Charing Cross; W. G. Sears, Guy's; J. Sevi, Montpellier and Charing Cross; H. R. Shone, Liverpool; J. H. Simpkiss, Birmingham; D. A. Skan, Guy's; H. Smith, Cardiff and St. Bart.'s; R. F. Smith, Guy's; L. Spira, Prague and Middlesex; Betty Stainer, King's Coll.; R. Stanford, London; L. Statnigrosch, Vienna and Middlesex; H. H. Steadman, Guy's; J. Stein, Univ. Coll.; J. A. F. Storrs, St. Bart's; Grace M. L. Summerhayes, Royal Free; A. Swain, Birmingham; Victoria W. Symonds, Cambridge and St. Mary's; R. C. Tatham, Middlesex; E. W. P. Thomas and G. W. R. Thomson, St. Thomas's; C. H. C. Toussaint, Guy's; H. Treissman, St. Bart.'s; Bertha Turner, Royal Free; J. H. M. Walker, Univ. Coll.; J. Wallman, London; S. E. Walmsley, St. Bart's; E. J. Warburton, Manchester; C. A. Wells, Liverpool; B. G. Wheatley, Middlesex; H. D. E. Whitman, Cardiff; C. H. Wight, St. Bart.'s; G. Wignaraja, Ceylon and Middlesex; E. R. P. Williams, Univ. Coll.; H. K. Williams and F. A. Wilson, Guy's; and Ellen Wirtz, Royal Free.

Communications were received from: (1) The Secretary of the Royal College of Surgeons, reporting proceedings of the Council of that College on July 31st and Oct. 9th, 1924. (2) The Director-General of the Medical Department of the Admiralty, dated Oct. 1st, reporting that the Gilbert Blane Medal has been awarded to Surgeon Lieut.-Commander H. B. Padwick, D.S.O., R.N.

Admission of women to the Fellowship: It was resolved for the first time that alterations in By-law No. 194 be made, permitting the admission of women to the Fellowship of the College. This alteration will require to be passed a second time at a subsequent Comitia before it becomes effective.

Dr. W. S. A. Griffith drew attention to a paragraph in the Supplement to the *British Medical Journal* of Oct. 4th, 1924, relating to an instruction by the American Immigration Authorities that persons who desire to emigrate from this country to the United States must be examined by medical practitioners who are members of the British Medical Association. After some discussion, in which Dr. R. A. Bolam took part, it was resolved that the attention of the President of the General Medical Council should be drawn to the injury which the proposed arrangement would inflict on medical practitioners who are not members of the Association. They would be precluded from giving medical certificates even to intending immigrants who were their own patients.

A report was received from Dr. Drewitt, concerning the Chelsea Physic Garden. This was entered on the minutes.

The President announced the award, by the Royal College of Surgeons, of the Jenks Scholarship for 1924 to Mr. A. R. C. Higham.

A report was received from the Committee of Management, dated Oct. 7th, as follows :—

I. The Committee report to the Royal Colleges that the following Institutions have been recognised for the course of instruction for the several special Diplomas :—

1. *For the Diploma in Ophthalmic Medicine and Surgery* :—(*a*) For complete courses, under paragraph V. of the Regulations : The Royal Eye Hospital, Manchester ; St. Paul's Eye Hospital, Old Hall-street, Liverpool ; the Glasgow Eye Infirmary, Berkeley-street, Glasgow. (*b*) For partial courses, under paragraph V. (*a*), (*b*), and (*c*) of the Regulations : The Royal Infirmary, Hull.

2. *For the Diploma in Psychological Medicine* :—(*a*) For resident, or whole-time, appointment for six months, or for clinical instruction for 12 months : The Maudsley Hospital, Denmark-hill, S.E. 5 ; Bloemfontein Mental Hospital, South Africa ; Grahamstown Mental Hospital, South Africa ; Pietermaritzburg Mental Hospital, South Africa ; Pretoria Mental Hospital, South Africa ; Valkenberg Mental Hospital, South Africa.

3. *For the Diploma in Laryngology and Otology* :—(*a*) For complete courses, under paragraph V. of the Regulations : The Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C. 1 ; Hospital for Diseases of the Throat, Golden-square, W. 1 ; Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W. 1 ; Birmingham and Midland Ear and Throat Hospital, Edmund-street, Birmingham ; Liverpool Eye and Ear Infirmary, Myrtle-street, Liverpool ; University of Liverpool Clinical School, Rodney-street, Liverpool ; Manchester Ear Hospital, Grosvenor-square, All Saints, Manchester ; Royal Eye and Ear Hospital, Hallfield-road, Bradford ; Royal Devon and Exeter Hospital, Exeter ; Portsmouth and Southern Counties Eye and Ear Hospital, Pembroke-road, Portsmouth.

II. The Committee report to the Royal Colleges the retirement by rotation from the Committee, under the conditions of paragraph VI., Part I., of the scheme for constituting the Examining Board in England, of Sir William Hale-White and Mr. W. G. Spencer.

Sir William Hale-White was reappointed a Member of the Committee of Management.

Books and other gifts presented to the Library during the past quarter were received and thanks returned to the donors. After some other formal College business the President declared the Comitia closed.

A reception will be held at the College, Pall Mall East, S.W. 1, on Wednesday, Nov. 12th, at 8.30 P.M., to commemorate the 300th anniversary of the birth of Thomas Sydenham. Sir Humphry Rolleston, the President, will deliver a short address.

Society of Apothecaries of London.—At recent examinations the following candidates passed in the subjects indicated :—

Surgery.—J. O. W. Bland, St. George's Hosp. ; E. F. Hottinger, St. Mary's Hosp. ; W. R. S. Jaecques, Ghent ; J. P. McGuire, St. Mary's Hosp. ; A. J. Moody, St. Bart.'s Hosp. ; C. M. Moody, St. Mary's Hosp. ; W. E. Pennington, Liverpool ; and C. J. Rozario, St. Thomas's Hosp.

Medicine.—H. L. Bernstein, Guy's Hosp. ; J. O. W. Bland, St. George's Hosp. ; L. K. Htoe, London Hosp. ; R. D. Jones, Edinburgh and Middlesex Hosp. ; K. Samaan, Cairo and Manchester ; and R. Schofield, Guy's Hosp.

Forensic Medicine.—A. Kaplan, St. Mary's Hosp.

Midwifery.—T. G. L. Davies, St. George's Hosp. ; B. M. Francis, Guy's Hosp. ; L. K. Htoe, London Hosp. ; P. B. P. Mellows, St. Bart.'s Hosp. ; C. M. Moody and A. B. Osbourne, St. Mary's Hosp. ; B. A. Perott, Petrograd ; C. J. Rozario, St. Thomas's Hosp. ; and K. Samaan, Cairo and Manchester.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery : H. L. Bernstein, J. O. W. Bland, L. K. Htoe, W. R. S. Jaecques, R. D. Jones, W. E. Pennington, and R. Schofield.

Royal College of Surgeons of Edinburgh.—The following candidates have passed the Final Dental Examination and have been granted the diploma L.D.S. R.C.S. Edin. :—

Moss M. Bronstein, Andrew Wilson, James L. Jacques, James D. Edminson, Patrick F. D. Delaney, Percy Taylor, Percival F. Hutton, James Hogg, Agnes J. Dalziel, Robert Scott, George S. Robertson, Ernest Lange, John C. Adams, William H. Phimister, Arthur B. Sykes, Walter Ingles, Alfred J. Brown, James M. Coutts, and William L. Graham.

The following candidates passed in the subjects indicated :

Pathology.—Margaret I. MacTaggart, John J. Seaton, and Peter Adair.

Medicine.—Margaret I. MacTaggart and Peter Adair.

Surgery.—Margaret I. MacTaggart, John J. Seaton, and Peter Adair.

West Kent Medico-Chirurgical Society.—A meeting of this society will be held at the Miller General Hospital, Greenwich, S.E. 10, on Friday, Nov. 14th, at 8.45 P.M., when Dr. J. S. Risien Russell will deliver an address on the Value of the Reflexes in Diagnosis.

Medical Society of London.—The second David Lloyd Roberts lecture will be delivered by Dr. Herbert R. Spencer on the Renaissance of Midwifery, illustrated by books and lantern slides, on Wednesday, Nov. 19th, at 5 P.M., at 11, Chandos-street, Cavendish-square, W. 1.

Royal Dental Hospital of London.—The dinner of the past and present students of the hospital will be held at the Trocadero (Empire Rooms), Piccadilly-circus, W., on Saturday, Nov. 22nd, at 6.30 for 7 P.M. Mr. W. Warwick James will preside.

Child-Study Society, London.—A lecture on Women Police Work among Children will be delivered by Commandant Mary Allen under the auspices of this society at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W. 1, on Nov. 13th, at 6 P.M. Dr. Letitia Fairfield will be in the chair.

Royal Sanitary Institute.—A sessional meeting of the Institute will be held at 90, Buckingham Palace-road, London, S.W. 1, on Tuesday, Nov. 18th, at 6 P.M., when a discussion will take place on the Economic Value of the Healthy Infant and the New Zealand Welfare Work to the State, illustrated by lantern slides, to be opened by Miss J. B. N. Paterson. The chair will be taken by Dr. Louis C. Parkes.

Belfast University Services Club.—On Nov. 11th, at 11 A.M., a wreath, in memory of Queensmen who fell in the late war, will be placed at the base of the War Memorial in the University grounds. One will also be placed at the same time at the Cenotaph in Whitehall, London, S.W. The sixth annual Armistice dinner will take place Thompson's, Belfast, at 7.15 P.M. on Armistice Day.

Harveian Society of London.—The next meeting of this society will be held on Thursday, Nov. 13th, at 8.30 P.M., at Paddington Town-Hall, for a discussion on the Results of Sanatorium Treatment of Tuberculosis, to be opened by Dr. Noel Bardswell.

Royal Statistical Society.—A meeting of this society will be held in the Hall of the Royal Society of Arts, John-street, Adelphi, W.C. 2, on Nov. 18th, at 5.15 P.M., when the President, Mr. G. Udny Yule, F.R.S., will deliver his inaugural address on the Growth of Population and the Factors which Control It.

Medico-Psychological Association.—The next quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will take place on Thursday, Nov. 20th, at 11, Chandos-street, Cavendish-square, W., under the presidency of Dr. M. J. Nolan, at 2.30 P.M., when a paper will be read by Dr. G. de M. Rudolf, entitled Malarial Treatment of General Paralysis : Some Psychological and Physical Observations.

Refractories Industries (Silicosis) Scheme.—Under the revised scheme to be issued in accordance with the recommendations of the Departmental Committee on Workmen's Compensation for Silicosis, a medical board is to be appointed to undertake the periodic and other medical examinations required under the scheme. This board will have its centre at Sheffield, and will consist of two whole-time medical officers, the senior of whom must have had not less than ten years' practice in the diagnosis of respiratory diseases with special experience of silicosis. Further particulars will be found in our advertisement columns.

Royal Society of Arts.—Among the lectures to be delivered during the coming winter session of this society, at John-street, Adelphi, London, the following are likely to have a particular interest for medical men. Problems of Food with Special Reference to India, by Lieut.-Colonel R. McCarrison, I.M.S., on Dec. 5th, at 4.30 P.M. ; The Trend of Modern Hygiene, by Dr. Andrew Balfour (date to be announced later) ; Cantor Lectures : a course of three lectures on Modern Colour Problems, by Louis C. Martin, D.Sc., on Nov. 24th, Dec. 1st and 8th, at 8 P.M. ; and a course of three lectures on Radiological Research—A History, by V. E. Pullen, Director of the Radiological Research Department, Woolwich, on Jan. 19th and 26th, and Feb. 2nd.

A Scholarship in Hæmatology.—A scholarship of £200 a year tenable for one year and renewable for a second year is being offered by the directors of Virol, Ltd., for the encouragement of British research in hæmatology. In awarding the scholarship regard will be held by the examiners to the following points : (*a*) Original work published or intended for publication by the candidate ; or (*b*) evidence of ability and opportunity to pursue original research in hæmatology ; (*c*) the previous record of the candidate before and after graduation. Selected candidates may be examined orally and practically on their knowledge of hæmatology. The examiners are : Sir William Willcox, Dr. Alfred Piney, and Dr. A. Knyvett Gordon, to the last-named of whom applications should be sent at 10, Bedford-square, London, W.C. 1, before Dec. 1st. Further particulars will be found in our advertisement columns.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 10th.

WAR: at 5 P.M.
Paper:
Surg.-Commander T. B. Shaw, R.N.: Remarks on the Incidence, Ætiology, and Prevention of Rheumatic Fever in the Royal Navy.

Tuesday, Nov. 11th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Papers:
Dr. R. D. Lawrence: Cases of Exophthalmic Goitre treated with Insulin.
Dr. G. A. Harrison: The Antagonistic Effect of Insulin and Thyroideum on the Body-weight of Rabbits.

PSYCHIATRY: at 8.30 P.M.
Presidential Address by Dr. C. S. Myers.

Wednesday, Nov. 12th.

SURGERY: SUBSECTION OF PROCTOLOGY: at 5.30 P.M.
Paper:
Mr. Lionel E. C. Norbury: Certain Atonic and Atrophic Conditions of the Cæcum and their Treatment.
Cases and Specimens:
Mr. Hamilton Drummond: (1) Specimen of Sacculitis of Pelvic Colon which caused Death from Portal Pyæmia. (2) Sacculi of Jejunum removed from Patient with Sacculitis of Pelvic Colon. (3) Case of Traumatic Rupture of Rectum into Peritoneal Cavity.
Cases and specimens will also be shown by Mr. Lockhart-Mummery, Mr. Græme Anderson, and others.

Thursday, Nov. 13th.

TROPICAL DISEASES AND PARASITOLOGY: at 5.30 P.M.
Papers:
Dr. Aldo Castellani: Observations on some little-known Diseases of Central America (with illustrations).
Dr. H. B. Day (late Professor of Clinical Medicine, Royal School of Medicine, Cairo): The Relation of Nephritis in Egypt to Intestinal Infection (with illustrations).
Specimens, &c.:
Dr. W. Broughton-Alcock: Appendicitis caused by Oxyuris Vermicularis.
Dr. J. P. Cullen: Two Photographs illustrating Muscular Dystrophy in a Native of the Northern Shan States (Upper Burmah).

NEUROLOGY: at 8.30 P.M.
Paper:
Dr. J. P. Martin: The Syphilitic Types of Progressive Muscular Atrophy.

Friday, Nov. 14th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown.

OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)
Cases:
Dr. Rosa Ford: Congenital Ankyloblepharon (two cases).
Mr. A. H. Levy: Acute Macular Disease (two cases).
Papers:
Mr. Ransom Pickard: The Relation between Cavernous Atrophy and Glaucoma.
Dr. Freeland Fergus: Miner's Nystagmus: Its Diagnosis and Origin.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
Monday, Nov. 10th.—8.30 P.M.: Discussion on Encephalitis Lethargica, to be introduced by Dr. E. Farquhar Buzzard, followed by Prof. A. J. Hall, Prof. J. McIntosh, Dr. A. Salusbury MacNalty, and others.

BIOCHEMICAL SOCIETY. (Physiological Department, St. Bartholomew's Hospital.)
Monday, Nov. 10th.—5 P.M., *Communications*:—Dr. G. Thomas: Micro-estimation of Urea in 0·2 c.cm. of Blood. Dr. E. Holmes: Excretion of Salicyluric Acid after Ingestion of Sodium Salicylate by the Human Subject. Dr. R. E. Chapman: Carbohydrate Enzymes of Starch-free Monocotyledons. Dr. E. M. Hume and H. Henderson Smith: Effect of Ultra-violet Irradiation of Environment on Growth and Calcification of Rats fed on Vitamin A-deficient Diet. Dr. G. A. Harrison: Effect of Insulin on Cholesterolæmia. Dr. R. L. Mackenzie Wallis: Observations on Glucose and Lævulose Tolerance Tests.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
Wednesday, Nov. 12th.—5 P.M., Sir Arthur Keith: Sir Richard Owen as Conservator (Thomas Vicary Lecture).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.
Monday, Nov. 10th, to Saturday, Nov. 15th.—Diseases of Children (Combined Course) at the Paddington Green Hospital, Victoria Hospital, and Children's Clinic. Special Intensive Course. Third week.—St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. Daily demonstrations, pathological demonstrations, and lectures. Second week.—St. Peter's Hospital for Stone, &c., Henrietta-street, W.C. Daily clinical work and special lectures on Urology. Fourth week.—St. Mark's Hospital for Diseases of the Rectum, City-road, E.C. Special Course in Proctology, including lectures, demonstration, and operations. First week.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
Monday, Nov. 10th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Saunders: Medical Wards.
Tuesday.—10 A.M., Medical Registrar: Clinical Methods. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
Wednesday.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Owen: Medical Out-patients. 4.30 P.M., Dr. Trevor Davies: Gynæcological Demonstration.
Thursday.—11 A.M., Mr. Simson: Gynæcological Ward. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
Friday.—11 A.M., Mr. McDougal: Electrical Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Tuesday, Nov. 11th.—4.30 P.M., Dr. F. G. Crookshank: The Psychology of Common Neuroses.
Friday.—4.30 P.M., Mr. E. Gillespie: *Bacillus Coli* Infection of the Urinary Tract.
Daily: Medical and Surgical Clinics, Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
Thursday, Nov. 13th.—4 P.M., Dr. Theodore Thompson: Acute Infections of the Nervous System in Children.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
Tuesday, Nov. 11th.—5 P.M., Dr. Knowsley Sibley: Eruptions due to Physical Causes.
Thursday.—5 P.M., Dr. H. MacCormac: Diseases due to Animal Parasites.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
Monday, Nov. 10th.—(At the Children's Hospital.) Dr. Johnson: Tubercular Meningitis.
Tuesday.—(At the Southern Hospital.) Dr. Johnson: Neuritis.
Wednesday.—(At the Northern Hospital.) Mr. McMurray: Deformities of the Feet.
Friday.—(At the Royal Infirmary.) Dr. Wallace Jones: Heart Cases.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)
Tuesday, Nov. 11th.—(At the Jessop Hospital.) Mr. King: The Treatment of Dysmenorrhœa.
Friday.—(At the Royal Hospital.) Dr. Naish: Points in the Diagnosis and Prognosis of Cretinism.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
Tuesday, Nov. 11th.—4.15 P.M., Dr. E. M. Brockbank: Heart and Aorta Strain.
Friday.—4.15 P.M., Prof. J. S. B. Stopford: The Motor Pathway.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.
Wednesday, Nov. 12th.—3.15 P.M., at the Town Club, Swindon, Dr. A. J. Wright: Tonsils and Adenoids and Ear Discharges.

CHADWICK PUBLIC LECTURES.
Monday, Nov. 10th.—8 P.M. (in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, W.), Mr. Mark Hovell: The True Significance of the Rat Menace and how it may be Minimised.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.
(Course of Lectures on the Health of the Commonwealth.)
Wednesday, Nov. 12th.—4 P.M., Colonel Sir Leonard Rogers; Leprosy as an Imperial Problem.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.
(At the Medical Society of London, 11, Chandos-street, W.)
Monday, Nov. 10th.—6 P.M., Sir Maurice Craig: Habit and Adaptation.

Appointments.

HOGAN, J. E., L.D.S. Irel., has been appointed Lecturer in Dental Surgery and Pathology in the School of Physic, Dublin University.

HOWELL, B. WHITCHURCH, F.R.C.S. Eng., Surgeon to Brookfield Orthopædic Hospital.

ROBERTS, W. M., M.B., Ch.B. Manch., Assistant Lecturer in Chemical Pathology, University of Manchester.

Certifying Surgeons under the Factory and Workshop Acts: ROBERTSON, W., Westerham (Kent); WINDEMER, D. A., M.R.C.S., L.R.C.P. Lond., Mevagissey (Cornwall).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Third Asst. P. £250.
Belfast, Forster Green Hospital for Consumption, &c., Fortbeda.—Med. Sup. £600.
Birmingham, Queen's Hospital.—P. to Out-patients.
Bolton County Borough.—Asst. M.O.H. and Sch. M.O. £600.
Bristol General Hospital.—Hon. Reg. to Throat and Nose Dept.
Cambridge, Addenbrooke's Hospital.—H.S. at rate of £130.
Cape Town University.—Wernher Beit Chair of Pathology.
Chailey, Sussex, Heritage Craft Schools.—H.S. for Orthopædic Surg. Dept. £200.
Chester Royal Infirmary.—Hon. Asst. Anæsthetists.
Edinburgh Royal Mental Hospital.—Res. Asst. P. £350.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P. Two H.S.'s and Obstet. Asst. at rate of £50 each.
Evelina Hospital for Children, Southwark, S.E.—H.S. at rate of £120.
Kensington, Fulham and Chelsea General Hospital, Richmond-road, Earl's Court, S.W.—Sen. and Jun. Res. M.O.'s for six months at rate of £100 and £75 respectively.
Manchester, St. Mary's Hospitals.—Three H.S.'s for seven months at rate of £50.
Metropolitan Asylums Board Mental Hospitals Service.—Two Jun. Asst. M.O.'s. Each £500.
Middlesbrough County Borough.—Asst. M.O..H £450.
Nottinghamshire County.—M.O.H. £1200.
Rousay and Egilshay Parish, Orkney.—R.M.O. £400.
Royal Naval Medical Service.—Surg. Lieuts. 25*s.* per day.
Ruthin Castle, Duff House, North Wales.—Asst. P. £700.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Third Anæsthetist. £25.
Salford Royal Hospital.—Res. Surg. O. £200.
Sheffield, Workmen's Compensation (Silicosis Acts).—Two M.O.'s. Sen. £900. Jun. £700.
Virol Scholarship in Hæmatology. £200.
West London Hospital, Hammersmith-road, W.—Surg. for Dis. of Women. Dermatologist. Also Hon. Medical Radiologist.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.
York County Hospital.—H.P. £150.

The Chief Inspector of Factories, Home Office, London, S.W. announces a vacant appointment at Cinderford, Gloucester.

Births, Marriages, and Deaths.

BIRTHS.

HORTON.—On Oct. 28th, to Dr. and Mrs. R. L. Horton, of "Morven," Westerhall-road, Weymouth—a daughter.

PARGETER.—On Oct. 27th, at Stamford Lodge, Sevenoaks, the wife of Henry Arthur Aidan Pargeter, M.A., M.B. Camb., of Dunstable, of a daughter.

PRATT.—On Oct. 27th, at the Haylands, Chigwell, Essex, to the wife of Dr. John Henry Pratt, of a son.

SOUTAR.—On Oct. 29th, at "Ardlea," Douglas, Isle of Man, the wife of Alan K. Soutar, M.R.C.S., D.P.H., of a daughter.

MARRIAGES.

LANE—DA COSTA.—On Oct. 28th, at St. Mark's North Audley-street, Gordon Lane, M.D., of Harley-street, W., to Mabel da Costa, of Green-street, W.

DEATHS.

GRAY.—On Nov. 3rd, after pneumonia, at North Holt, Hythe, Kent, Colonel William Lewis Gray, C.M.G., A.M.S. (retired), aged 60.

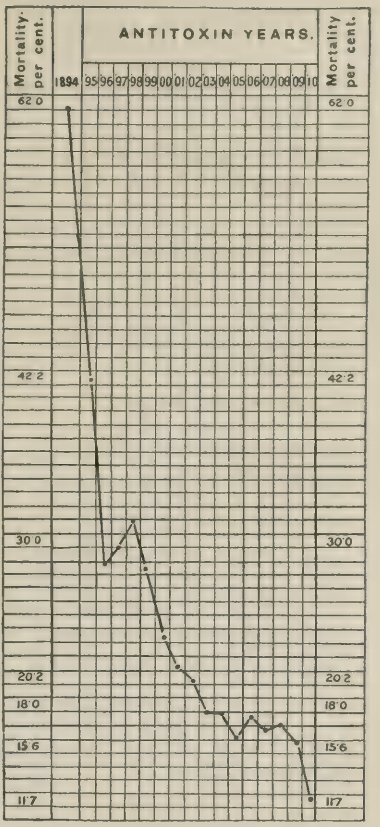
N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOBEL PRIZE IN MEDICINE.—This prize for 1924 has been awarded to Prof. William Einthoven, Professor of Physiology in the University of Leyden.

Notes, Comments, and Abstracts.

DIPHTHERIA ANTITOXIN AND LARYNGEAL DIPHTHERIA.

IN 1908, under the presidency of Lord Cromer, there was founded the Research Defence Society, whose object is to make generally known the value and the necessity of experiments on animals; the restrictions imposed on them by the Act of 1876; and the great saving of human and animal lives already obtained by means of such experiments. Every quarter this Society publishes a little journal entitled *The Fight against Disease* (Macmillan, 6*d.*). It contains notes on current experimental work, comments on questions arising in connexion with the administration of the Acts safeguarding vivisection, and records of advances in medicine achieved by animal experiments. The current number includes also a series of three "old stories retold," in which the fascinating tales of the discovery of the lacteals, of Sir Charles Bell's experiments on the nervous system, and of Claude Bernard's early work on the vasomotor system are recalled. Those who are familiar with this journal will recognise the chart, here reproduced, which appears on the back cover of every issue. It records the arresting decrease of the mortality from laryngeal diphtheria following on the introduction in November, 1894, of diphtheria antitoxin into the routine treatment of patients in the hospitals of the Metropolitan Asylums Board.



The chart, which refers only to cases of laryngeal diphtheria and does not include any slight or trivial cases, shows that the average mortality among cases of laryngeal diphtheria came down from 62 per cent. to 11·7 per cent. in sixteen years. The average mortality among tracheotomy cases came down from 70 per cent. to 20 per cent. in the same period. Now although the extensive application of the bacteriological test for diphtheria, coming as it did shortly before the use of antitoxin, no doubt resulted in a somewhat larger number of mild faucial and nasal cases of diphtheria being recognised and sent into hospital, the same explanation does not hold good for the laryngeal cases. Laryngeal obstruction is now just as much an immediate menace to life, and the call for operative relief equally insistent, as it was before the discovery of antitoxin. The only difference has been in respect of treatment. All cases of laryngeal obstruction have been treated with full doses of antitoxin immediately on coming into hospital. The effect of this has been that a certain number, chiefly those in the earlier stage of the disease, or those in which the obstruction has not progressed to the same degree, have not required tracheotomy at all, the obstruction having been relieved as the result of the early administration of serum. This fact, although without influence on the mortality of the wider group of laryngeal attacks, must have the effect of prejudicing adversely the mortality of the tracheotomy cases owing to the exclusion from the series of a certain proportion of the milder and less urgent cases. Had this not been the case, the lowering of mortality in the tracheotomy group, as shown by the statistics, would be even greater.

THE STORY OF A DUBLIN HOSPITAL.

AT the beginning of the eighteenth century there was not a single hospital in Dublin for the reception of sick civilians, although there was some scanty provision for sick soldiers. In 1699 "certain of the Commons" petitioned the Dublin Corporation a piece of ground, according to an annexed description, might be appropriated for the building of a hospital. The corporation granted the petition, but nothing further seems to have been done, and in addition, though the promoters approached the College of Physicians for a medical staff, again nothing was done, even though the President and Fellows on St. Luke's day, 1699, resolved "that att next meeting of ye Colledge of Physicians ye attending of a Hospital to be founded by ye Citty of Dublin for ye sick, be considered." So matters went on until 1718, when six Dublin surgeons opened a house in Cook-street at their own expense for the treatment of patients needing surgical aid. This hospital flourished from the start, and eventually became the present Jervis-street Hospital. In 1720 was founded Dr. Steevens' Hospital, and the history of this institution forms the subject of an unusually interesting book by Dr. T. P. C. Kirkpatrick.[1]

Richard Steevens was the son of John Steevens, who was probably curate in charge of Cherril, a donative of Calne in Wilts. John Steevens resigned his charge and fled to Ireland, on account, it is said, of differences with Cromwell concerning his late Majesty Charles I. This occurred about 1654, and in 1664 we find him rector of St. Mary's, Athlone. He had two children, twins, Richard and Grizel, and Richard, born circa 1653, was educated at the Latin School of Athlone, entered Trinity College, Dublin, in 1670, graduated B.A. in 1675, and commenced master in 1678. He is said to have taken deacon's orders, intending to follow his father's footsteps, but after his father's death in 1682 he changed his mind and began to study medicine, commencing doctor in 1687. Despite the disturbed times Steevens prospered in his profession, and acquired estates to the amount of some 3000 acres. He died in 1710, bequeathing most of his property to trustees to be used after the death of his sister Grizel: "To build or cause to be built or otherwise provide one proper place within the City of Dublin for an hospital for maintaining and curing from time to time such sick and wounded persons whose distempers and wounds are curable." Grizel Steevens, however, who, as was the custom of the time, bore the courtesy title of Madame Steevens, was not disposed to wait until her death for the fulfilment of the charitable desires of her brother. After a short struggle with the Court of Chancery and a fruitless application to the Government for help in 1716, with the consent of the trustees, she decided to give such a sum of money from her private income as would suffice for the building to be started and at the same time promised further annual gifts. Progress was slow, and the building was not opened for the reception of patients until March, 1732–33. Many of the bills for the furnishing of the house have been preserved and form interesting reading to-day. For instance, 40 bedsteads of deal cost 25*s.* each and 50 pewter chamber.pots cost £5 4*s.*, while two dozen "Ocamy spoons" cost 10*s.* These bills are dated 1729. By 1737 prices had risen, for a bill of that date shows that 11 pewter chamber-pots cost £1 7*s.* 6*d.*, but, on the other hand, "ten alkaney spoons" only cost 5*s.* The expressions "Ocamy" and "alkaney" are both obviously corruptions of "alchemy," a term which was applied to a particular kind of fine brass or bronze. Thus a marginal note in the Geneva New Testament of 1577 to the passage from Revelation, "his feet like fine brass" gives "*or* alkumyne." Good Madame Steevens died on March 18th, 1746–47, having lived in the hospital since a little before it was opened for patients. She was a masterful lady, and in 1735 ordered the dismissal of Owen Lewis, the resident surgeon, for what offence is not known, but this is the only time that she interfered in the internal affairs of the hospital. At her death the whole of her property, save for a few trifling legacies, passed by her will to the governors of the hospital. One of Steevens' trustees and an untiring worker for the hospital, which, however, he did not live to see opened, was Thomas Proby, appointed Chirurgeon-General in Ireland in 1699. He gained great renown in Dublin for having removed a bodkin from the bladder of a girl named Dorcas Blake, who said that she had swallowed it. A report of the case was submitted to the Royal Society by Dr. Thomas Molyneux, on referring to which we find that she is said to have swallowed the bodkin, which was made of ivory, on Jan. 5th, 1694. By next evening she felt a pricking pain near her right groin, and on Jan. 7th a midwife who "searched" her felt the end of the bodkin but thought "it was in a gut." On Jan. 8th Proby was called in and felt the bodkin per vaginam. Some days later he tried to extract it through the urethra, but could not. Nine weeks after the "swallowing" he extracted it by a suprapubic cystotomy, and the report states "there was but half the *Bodkin* in the *Bladder* . . . the other half was out of the *Bladder* in the *Pelvis* the point resting upon the *Ischium.*" As Proby felt the bodkin in the bladder three days after the alleged swallowing, and despite Dorcas Blake's sworn oath before the Lord Mayor on June 10th, 1695, that she did swallow it, there seems a reasonable suspicion that she was romancing.

So the record of the hospital continues with interesting biographical details about the staff, some of whose names are household words, such as Colles, Croker King, about whom were written the lines so eminently practical, if not poetical:—

> "The fractured Skull to Samuel Croker King,
> The broken Limb, Wounds and Luxations bring;
> There's no Disaster but he can set right,
> With Splints, Trepan and Bandage not too tight."

Among the physicians and obstetricians Sir H. Marsh, H. J. C. Tweedy, E. H. Tweedy, and Henry Jellett, both the two latter being Masters of the Rotunda, find a place. Dr. Kirkpatrick has provided his readers with an excellent list of the officials connected with the hospital from its inception, illustrated by short biographical notes. There is an admirable index, and finally he slays the extraordinary myth which somehow gained currency that Madame Steevens was the original of the Pig-Faced Lady! Altogether the book is a model of what a hospital history should be.

PRESENTATION TO A MEDICAL MAN.

Dr. F. M. Blumer was presented on Oct. 17th by members of the general committee of the Staffordshire General Infirmary with an illuminated address to mark his 38 years' valuable services to the institution. The address, which was embossed on vellum and bound in morocco, stated among other things that "Your membership of the honorary staff of the infirmary is a record of singleness of purpose, of work well performed," and expressed the appreciation of the committee for Dr. Blumer's decision, at the committee's request, "to continue for a further period as an active member of the medical staff." The presentation was made by Major J. C. G. McFerran, chairman of the board of management, and there was a large gathering of Dr. Blumer's friends and colleagues.

MIDDLESEX HOSPITAL.

THE War Memorial of the borough of Marylebone took the form of the endowment of six beds in the Middlesex Hospital. A sum of money being left over this has been augmented, and on Oct. 27th another bed in the Broderip Ward was opened by Prince Arthur of Connaught, chairman of the hospital, who was accompanied by the Princess. His Royal Highness also unveiled a tablet recording the endowment.

DAIRY-WORKERS AND TUBERCULOSIS.

THE Minister of Health has issued a draft of new Regulations (Public Health (Prevention of Tuberculosis) Regulations 1924) to be made for the purpose of preventing infection from the employment in and about farms, dairies, and milkshops of persons suffering from pulmonary tuberculosis. Under these regulations (*a*) a medical officer of health may report to a local authority that a person employed in connexion with the handling of milk is suffering from pulmonary tuberculosis, and (*b*) on receiving any such report the local authority may by notice in writing signed by the clerk or the medical officer of health require such person to discontinue his employment or occupation on or before the date specified in the notice, such date being not less than seven days after the service of the notice. An appeal against the requirement of the local authority may be made to a court of summary jurisdiction within 14 days from the service of the notice.

ROYAL NORTHERN HOSPITAL, LONDON.

ON Oct. 30th, Princess Louise, Duchess of Argyll, President of the Ladies' Association, opened the new nurses' home at the Royal Northern Hospital, Holloway-road, London, N. Lord Northampton, who, with other friends and officials, received the Princess, referred to the fact that the King was Patron and the Prince of Wales President of the hospital, and said that the new home had been made possible through the help received from King Edward's Hospital Fund for London, the British Red Cross Society, the Ladies' Association of the Royal Northern Hospital, and many generous donors. The cost of the new building, including the site, was £33,900, of which £5900 was still needed.

ANY friend of the late Prof. S. G. Shattock who would care for a copy of the portrait issued with the last number of the *Journal of Pathology and Bacteriology* can have one on application to the Editor, 17, Loom-lane, Radlett.

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[1] The History of Dr. Steevens' Hospital, Dublin, 1720–1920. By T. Percy C. Kirkpatrick, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Dublin: At the University Press. 1924. Pp. 397.

An Address
ON THE
PROGRESS OF PATHOLOGY.

elivered at the Opening of the New Pathological Institute at the University of McGill, Montreal, on Oct. 6th, 1924,

BY A. E. BOYCOTT, M.A., D.M., F.R.S.,

RAHAM PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON; DIRECTOR OF PATHOLOGY IN UNIVERSITY COLLEGE HOSPITAL AND MEDICAL SCHOOL.

MAY I begin by thanking the University very eartily for giving me the chance of taking part in his ceremony. It gives me the greatest pleasure o be here, and I take it as an unexpected compliment o English pathology that you have asked me; it elps us to know that the common opinion that nglish pathology does not count for very much is ot universally shared. Speaking on behalf of my olleagues, I bring you our best congratulations on chieving this splendid addition to your resources nd our best wishes for the future. We feel, I hink, that we have a special kinship with McGill athology. We both enjoyed the stimulus of Osler, ou at the beginning and we at the end of his career; dami has always been with us more or less, in person r in his books; Miss Maude Abbott has tried to teach any of us how to classify museum specimens, o that we have always had a good deal to do ith you.

The history of academic pathology is brief. Your irst professor was appointed in 1892 and still lives n the world of administration to which he has been alled, and in thinking and talking of pathology t is always well to remember what a young subject t is—still in the exuberant and rather disorderly eriod of adolescence. You are now enjoying your econd professor, and his career has culminated and tarted out on a fresh pilgrimage at a higher level by he provision of this noble institute. You have seen, r will see, for yourselves what a place it is; I need not well on that. I do not set so very much store on uildings and fitments myself—the people who use hem matter much more—but you do want room and ight and plenty of gas, water, and electricity, and t is evident that this new institute is admirably dapted for its purpose. I would rather emphasise ts origin which has, I think, more to teach us. It has een erected by the patriotism of the citizens of ontreal and the loyalty of the alumni of the Univer-ity under the encouragement and stimulation of the ockefeller Foundation, and I do not think I am going oo far when I suggest that this institute would not ave been attained, at any rate in these years, without he aid of that remarkable corporation. The Rocke-eller Foundation is charged to administer its funds "for the good of mankind throughout the world"; t has chosen medical education as its special field, nd there are now schools all over the world from China o Peru which are indebted to the wise generosity of r. Vincent and his colleagues. Has there ever been a ore ample and beneficent example of that inter-ationalism which the world so much needs? We re, I suppose, agreed that the whole ethic of a good ife is summed up in that simple direction "Bear ye ne another's burdens." It is simple enough, but it is ard to do—all those simple rules which Jesus gave s are hard to do, are they not? But I think the ockefeller Foundation has been and is making a retty good attempt. What burden of theirs you re bearing in return I do not know unless it is the urden of some of their liquor.

THE DEVELOPMENT OF PATHOLOGY.

Why is it that we welcome this building? What is athology about that it is worth study? Pathology as come to be such a hodge-podge of interests and ctivities that a definition is difficult. But, roughly peaking, it deals with the causes of injuries to live organisms, with their effects on the body, and with what the body does to try to put things straight. In other words, it is, in its application to man, the study of disease apart from diagnosis and treatment. It began everywhere I think in morbid anatomy, in the investigation of the changes found in the body after death. And in this it still finds its fundamental basis. Though modern biologists sometimes seem to think the contrary, form has still to be taken into account along with function, and if alterations in structure are not now the end as well as the beginning of inquiry the quaint notion that morbid anatomy is played out comes only from those who are ignorant of what the anatomist has to say. And because those who pursued this work were the only people in immediate contact with medicine and surgery who had a liking for, and any skill in, laboratory methods of investigation, it has extended very widely into any laboratory work in relation to sick people. The result is that the content of pathology is singularly various. It is like a Woolworth's window—some of it is worth having at the price and some of it isn't, some of it ought to be there and some of it ought not. Let me illustrate what I mean by two examples taken from topics which have in recent years occupied a considerable share of the printed literature of the subject.

The Wassermann Reaction.

The Wassermann reaction for the diagnosis of syphilis by the examination of the blood was discovered about 15 years ago. It was found out by the logical application of established principles. But it very soon appeared that it had in fact nothing to do with those principles at all; it was an empirical trick, and to this day its rationale remains unexplained and it is a phenomenon which is unrelated to anything else. But it is a first-rate method of diagnosing a disease which has been a stumbling-block in clinical medicine and surgery since Erasmus deplored the evil influence of its growing prevalence on the development of culture in Europe in the sixteenth century. Except in its early stages diagnosis was often simply speculative, and the real prevalence of the disease and its real importance provided an unrivalled field for the guess-work to which we doctors have been almost as prone as the propagandists. The Wassermann reaction has altered all that. We now know who has syphilis and who hasn't; we know that general paralysis and tabes are syphilis; we know that it is a serious disease, but nothing like so serious as tuberculosis, or cancer, or bacterial infections of the heart. All of which you will see is diagnosis—in other words, medicine. To pathology the discovery has contributed practically nothing; it leads nowhere, it illuminates nothing else. It is one of the items in what is called pathology which ought not to be there until it has earned its place in the scheme of rational and related knowledge.

The d'Herelle Phenomenon.

Contrast this with the phenomena recently discovered by d'Herelle and since discussed by him and others in hundreds, I expect thousands, of papers. d'Herelle found that under certain circumstances something appeared in cultures of bacteria which killed and dissolved them. I need not go into the rather technical details; the essence is that this something is associated in an intimate way with the bodies of the bacteria, that it can multiply, and that it is too small to see. Of the facts, two opposed explanations have been put forward. d'Herelle himself holds that the something is a living parasite of the bacillus and thinks that he has found out an important method of circumventing their objectionable activities. Others think that the something is not alive but is a dead ferment. I know of no crucial test which could be applied to settle the point at issue. If it is alive it certainly differs from any other known live thing; if it is dead, it equally certainly differs from any other known dead thing. When serious and skilful investigators have a difference of opinion of this kind, it may always be assumed that the dilemma which they are propounding to one another is not a real one, or that their antagonistic interpretations do not exhaust the possibilities. So it evidently is in this case. Is it alive or dead ? is not the final question, for the something is plainly half alive or half dead whichever way you like to phrase it, and this work has revealed to us the connecting link between live and dead matter which almost everyone has assumed to exist, and which everyone is strangely loth to recognise when it is before them. We now see the whole world displayed in one continuous series from the atom to the elephant. I need not dilate on what a discovery like that means. True, it is of no apparent importance in the treatment of dysentery as d'Herelle hoped, it has no obvious connexion with clinical medicine and surgery. It just helps us to make a substantial step in understanding the world. Is the Wassermann reaction or the bacteriophage the more worth our attention ? The Wassermann test does much for our bodies, it may do a little for our minds when we tot up statistics, it leaves our souls where they were. The bacteriophage knits up some of the greatest adventures of the human mind, it brings together people so diverse as Béchamp and Rutherford, and for my own part I feel the better for it.

Such are two examples of the varied topics of which "pathology" has come to consist. Of its practical utility there is no doubt; some of you may have heard, and more will have read, the statement which the President of the British Association made this year at Toronto of the wonderful progress of recent years. In the dead-house, in parasitology, in nutrition, in chemical pathology, in experimental work, progress has been prodigious along practical lines. In the everyday work of any respectable hospital the methods of pathology take on an ever-increasing importance—parenthetically I may be allowed to suggest sometimes too much; as every pathologist knows there is singular readiness on the part of some of those whose business is diagnosis and treatment to desert the difficulties of the wards for the far easier problems which we make up in laboratories; that, however, is not my business. I remember as a medical student seeing as much of the work of Dr. Jenner's pioneer clinical laboratory in London at St. Thomas's Hospital as a rather autocratic director would allow, and it is interesting to compare the scope of what was done then with what is now commonplace in meaner institutions and under far meaner inspiration. Useful then pathology is. But it is not on that account that we think pathology is worth studying, and welcome so heartily this new encouragement of its pursuit.

THE REASONS FOR STUDYING PATHOLOGY

Dean Gaisford, of Christ Church, once said, about a hundred years ago, that there were three reasons why you should know Greek. In the first place, he said, it enables you to read the words of Jesus in the original; in the second place it allows you to have a hearty contempt of those who are not acquainted with the language; and in the third place it leads to positions of emolument in the Church. Our immediate comments are obvious, and we should naturally say of his first reason that it is untrue, of his second that it is hardly charitable, and of his third—well, the less said about it the better. But at bottom I am not at all sure that the Dean was not putting forward, in a curious way it is true, a very real apology for the study of a subject which has done so much for our right development during the past 400 years. The world 100 years ago was quite a different place from what it is now, and he knew that ample means helped towards the freedom which is wanted for mental and spiritual progress: he realised that this culture admits a man to an intellectual aristocracy which knows itself to have inward resources from which those without Greek are excluded; he wanted to say that if a thing is to be rightly apprehended and in the fullest way you must get down to the root of it, you must read it in the original. This is the real apology for Greek, and it is the real apology for pathology too. We want to study pathology because of our insatiable curiosity to understand things, and because we know that the satisfaction of that curiosity helps us along the world's search for goodness, truth, and beauty. In other words, we want to realise in pathology the ideal which is the basis and impregnable rock of our universities. I am almost ashamed to deliver myself of such platitudes before an assembly for the most part composed, if I may judge from your gay clothes, of university doctors. But things happen nowadays and things are said which seem to make it necessary to state our ideals occasionally in black and white and to remind ourselves for comfort that our rock is, in fact, impregnable. Knowledge is extolled because it is useful; we are told that universities should be run on business lines, that their main purpose is the passing of undergraduates through courses of instruction. People are ashamed to say that they are interested in Greek grammar or the anatomy of crustacea or the necroses of the liver for no other reason than that God has put it into their minds so to be; they must fain produce excuses about political anthropology or inshore fisheries or medicine. Only the other day Prof. A. V. Hill was making excuses to the Royal College of Physicians of London for the study of physiology for its own sake—a sign of the times on which I can make no adequate comment.

I judge, therefore, that the time has now arrived when pathology must recognise that it is a science which can and ought to stand on its own feet and pursue its own end, which is the study of pathology, not the study of medicine and surgery. That it is able to do this and that it can be so studied its achievements have, I think, amply demonstrated. Arising from medicine and having been brought up with that humane kindliness which characterises our profession, it is time it started out on its own; it needs to go to its secondary school and not to have its education stopped at 14 to do chores to help out the family budget as a half-timer. If by one of your miracles of inhibitory legislation you prohibited medicine and surgery to-morrow, pathology would still go on; it is old enough for that now, and I sometimes think it might be none the worse for a holiday right away from its parents.

THE PRESENT STATE OF BACTERIOLOGY.

It is, I believe, only by a recognition that this is the present situation—more or less—that further progress is possible. And surely fundamental progress has been slow enough in recent times. Consider, for example, the present state of bacteriology. The study of it began intensively about 40 years ago; it started technologically and for long was almost purely medical in character and application. Lately other branches—soil, leather, and what not—have grown big, but they are technological too. What is the result ? Its technological progress has been prodigious; our knowledge has not only completely revolutionised medicine and hygiene but has come to be an integral part of the daily life of the general population. Indeed, if I want to explain to some curious laymen what my pre-occupation is, "bacteria and so on" saves trouble and will convey something pretty definite; everybody "knows about bacteria." But bacteriology is now sterile; no discovery of first-rate importance has been made for many years, and we are constantly being brought to a standstill for want of knowledge of how bacteria live and move and have their being—knowledge of a sort which may be called botanical. We do not even know how bacteria multiply and whether they have anything in their life-history corresponding to a sexual process. Not knowing that, we cannot evaluate the possibilities of variation and mutation, questions which lie at the root of many problems of epidemic disease; nor can bacteria satisfactorily form the subjects of a number of biological experiments for which their small size and rapid multiplication so admirably fit them. And this state of affairs is due to the fact that bacteria have been studied as causes of disease; no one has loved them for themselves. Practice has outrun theory so far that practice is itself coming to a dead end.

Apart from its technical medical aspects, much the same is true of the rest of pathology as anyone may see by comparing Coats's text-book with the latest edition of McCallum. Except in detail progress has been very slow; I need not labour examples.

Technological and General Pathology.

We must then return to the outlook of Virchow and Cohnheim and the other great masters who taught us that pathology existed and was worth our attention; I do not imagine that it ever occurred to them that it was nothing more than an appendage of medicine. The medical aspects are at present in most places fairly well satisfied; it is the more general outlook which needs attention. Our history will, I imagine, reproduce the history of chemical study. Fostered a good deal in medical schools in early days for its pharmaceutical importance, it has now developed into the chemistry which is prosecuted in universities and the chemistry to which schools of technology devote themselves—not two separate sciences but two ways of looking at the same science which, incompatible in temper to a degree which makes it impossible for them to live happily together, yet freely communicate with one another, have all knowledge in common, and unite into a complete and harmonious whole. Correspondingly we shall have a technological pathology in the medical school and a general pathology in the science faculty. There will be no divorce of clinical from scientific work—I am particularly anxious that you should not think I am advocating that—but each of the partners will be free in the service of the other. "Next," says Dorothy Osborne, "to doing you a service my greatest pleasure is to receive one from you"; that is the relation which should exist between medicine and pathology.

If we try to direct this piece of evolution by deliberate effort in detail we shall be likely to make something of a mess of it. What we need is the right spirit, and with that all these things will be added to us. But two or three things are obvious. In the first place much of what is now called pathology must be transferred to medicine and hygiene where it properly belongs. Especially should that curious hybrid "clinical pathology" be brought to an end. It has been an extraordinarily useful makeshift, but it is pathologically sterile and has other mulish qualities, and being essentially diagnosis, should be distributed between the appropriate clinical subjects. This transference has begun, its need is widely recognised, and in due course, no doubt, it will be complete. The change is made easy by the establishment of the whole-time clinical departments which, if only people will have patience, are going to transform the whole atmosphere of our medical schools. Similarly in hygienic bacteriology, diagnosis should pass to the health officer and the scandal of university departments engaged in trade, prevalent enough in England, ought to be stopped. In each case the change will be much to the advantage of both parties: both the clinician and the medical officer of health will gain by having the work in their own hands, and the pathologist will be free of a mass of dull work of which he seldom sees the real significance and which at the best affords a placid occupation for unimaginative minds.

The Two Sorts of Pathologists.

Many of my pathological friends will, I know, object strongly to these proposals. There are roughly two sorts of people who profess and call themselves pathologists—those whose real heart is in medicine, with all its human fascination and its individual interests, and those who are in pathology because they have had it laid upon them to try to know about the reactions of live things to injury and disease, without any more particular reference to human welfare than all of us selfish humans have in our anthropocentric world. I have no wish to start a heresy hunt, but it is plain that in the redistribution of work which I have indicated the former class will go where their treasure is and join clinical departments.

Comparative Pathology.

And in the second place, we must widen the scope of the pathology which will in this way be freed from much that does not really belong to it. When you come to think of it, it is really fantastic to try and deduce general rules from an intensive study of man and casual observations on the few species of animals which we find convenient, for human work, to have in our laboratories. It is curious how often a more generalised pathology has been advocated and how little it has been practised. Hunter, Paget, and Macewen are names which will appeal to the most practical of surgeons; they all laid stress on making the field of our study wider; few have listened to them. What we need is a comparative pathology, and it will transform our notions of disease and injury as the comparative anatomy of last century revolutionised zoology. There is no time to enlarge on this necessity; let me just quote three examples. The site distribution of tumours is a matter on which there has been a good deal of talk; we happen to know that the distributions in the mouse, the dog, and the cow are different from one another and quite different from what obtains in man. We clearly ought to know what it is in as many animals as possible before we draw any conclusions of more than specific scope. The anatomical reaction to injury is one of the greater topics of pathology. How much will you find in our text-books on plant galls which exhibit an exquisite specificity of anatomical reaction which is quite unrepresented in animals? Of the physiology and pathology of galls little is known and their study is still in the taxonomic stage. How often is it realised that the chemical methods of defence against parasites of which we have to read so much are an evolutionary development attained to only as warm-bloodedness was achieved, and that they are of importance only among that small and very specialised group of live things? The importance of studying animals other than man is well illustrated by the work which Miss M. Slye has done on her town of mice at Chicago; quite apart from tumours, towards which her study is particularly directed, she has a mass of interesting data about the pathological changes to which those animals are subject and the causes of their death. Dr. H. Fox, in Philadelphia, has lately shown us what good use may be made of zoological gardens, and Dr. N. S. Lucas and others have made a beginning along the same lines in England. Veterinary studies have contributed something, and Dr. Theobald Smith gives us an example of what may be done by observing a herd of cattle as a health officer observes a human population. But "comparative pathology" is not always what it might be; too often it is simply the technological study of diseases of importance in domestic animals of economic value, and it is given a name which will satisfy the academic pedant and for its prosecution excuses are made which will please the practical agriculturist and with luck attract endowments. Anyone who wishes to see what an all-round conception of general pathology can be should study the writings of that good man and great scholar, Samuel George Shattock, who died a few months ago after 40 years devoted service to his science.

And thirdly, something may be done educationally. Medical instruction has been mauled about enough for the present; I think we had better leave it alone for a while and see how our reforms work. But pathology should no longer be a purely medical subject and courses should be available for other than medical students, first perhaps for the biologist, to whose subject pathology is more germane than has been realised, then for the philosopher. It would do us teachers a deal of good to have to guide into pathology students who neither know nor intended to know any medicine; we should, I am sure, reap a good harvest of fresh ideas. A beginning in this has been made already; at Cambridge, under Prof. H. R. Dean, pathology has got into the natural science tripos; at

Manchester Prof. W. W. C. Topley, and at Leeds Prof. J. R. McLeod are exploring the possibilities of a generalised bacteriology, and there are, no doubt, other advances being made along the same line which I do not know of. Feeling a little nervous that the programme which I have sketched might not commend itself to Prof. Oertel, I was delighted to learn on getting here that McGill is adopting this wider point of view and recognising pathology as a subject for the M.Sc. and Ph.D. degrees. Whether many students will present themselves for these new courses remains to be seen, but that is a factor which should count for little in any scheme of university reform.

Conclusions.

Well, here is your new building; may you have a happy life in it. William James says somewhere, you will remember, that a deed well done can reach perfection only if it is well received. Those who have provided this institute have done their good deed; it remains with you to make it perfect by your good use of it. I am sure you will.

THE

Bradshaw Lecture

[ABRIDGED]

ON THE

PREVENTION OF ACUTE RHEUMATISM.

Delivered at the Royal College of Physicians of London on Nov. 4th, 1924,

By F. JOHN POYNTON, M.D., F.R.C.P. Lond.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL AND THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

[After referring to the study devoted by Fellows of the College in the past to the subject of acute rheumatism, and specifically to the work of those who had been his own teachers, Dr. Poynton proceeded to discuss the difficulties that beset the problem of prevention. He said :—]

The prevention of acute rheumatism is faced with many difficulties, and I think the more closely it is studied the more apparent these become. The first of these is nomenclature, for acute rheumatism may be the most insidious of maladies. Yet if we leave out "acute" and use the term "rheumatism" we are at once overwhelmed by the various disorders with which we are confronted, and if we abandon the term "rheumatism" altogether we shall have great difficulty in finding a substitute.

The next difficulty is concerned with the ætiology of acute rheumatism considered as an infective disease. This has a most important bearing upon the possibilities of prevention, but is at present in a state of uncertainty. I believe I shall not be wrong if I put the position somewhat thus. Many who have given the most attention to the subject recognise the importance of the strepto-diplococcus, but do not think that it affords a complete explanation and would look elsewhere—to some filter-passer, for example. Neither do I look upon this micrococcus as a complete explanation, but I do not anticipate the discovery of another infective agent. I look for help from the unravelling of the tangled skein of the secondary factors which combine with the micrococcus to produce this specific disease.

Even if we admit that acute rheumatism is due to a specific infection we find ourselves confronted by further problems, among which are the many predisposing factors to the infection, such, for example, as heredity, environment, and nerve strain.

Again, our conception of the disease is still deficient in two particular directions; we have very little accurate knowledge either of the life-history of such an infection when once it has gained access to the human frame, or of the influence of the tissue-characteristics and habits of the patient upon its course. On this account I have always included in any scheme for the prevention of acute rheumatism provision for opportunities for research.

The varied symptoms of the disease dependent upon the various important organs attacked constitute yet another difficulty, though one which must steadily diminish with increasing knowledge. Then there is the difficulty of treating this disease with success, and upon this point, so far as children are concerned, I unfortunately find myself at variance with many able physicians. Except for the relief of pain, my experience as to salicylate of soda and other members of that group has been so unsatisfactory that I have no hesitation in stating that in the most formidable cases of carditis in the young my best results have been obtained without their use.

Reasons for Attempting Prevention.

It may be asked whether it is not premature in the face of so many difficulties to enter upon elaborate attempts at prevention, but to this I believe we may safely answer "No," and for these reasons: 1. It is generally admitted that acute rheumatism is a cause of three disorders of national importance—first and foremost, organic heart disease, secondly chorea, and thirdly arthritis and fibrositis. 2. It is not a rare disease but a frequent one, and the heart lesions, chorea, and arthritis are common manifestations. 3. It is much more rife in the poorer classes, and the study of poverty with a view to its amelioration is undoubtedly a function of a civilised country. 4. Again, it is a disease which certainly responds to careful supervision and treatment, and there are at the present time flaws in our supervision capable of at least considerable mending. 5. Lastly, it is not a disease of the old and failing, but one that kills and maims children and young adults, damages useful citizenship, and wastes much money spent on education. A recent Blue-book on the subject of the "Incidence of Rheumatic Diseases" in its quiet pages supports all the statements I have just made.

The Medical Practitioner.

In the prevention of acute rheumatism it is clear that the doctor in general practice must, as in all the great problems of preventive medicine, take a prominent and essential part, not only in early diagnosis and treatment, but in the supervision of those who have suffered from the results of the disease. It is not too much to say that if this branch of our profession failed us, which is not thinkable, the whole fabric of prevention would be unsound at its foundations. The responsibility for adequate training in the clinical and pathological aspects of the disease rests with the great teaching centres. To them we must look for rousing in the minds of future practitioners an enthusiasm for the opportunities they would have to help to make a success of a scheme which holds out such great possibilities.

The Hospitals.

Our hospitals, and in particular the children's hospitals and the children's departments in the general ones, would in any scheme hold, I presume, the same position they do now, and would also carry out the training of the undergraduate students in the recognition of the disease and its manifestations and the methods of prevention and immediate treatment.

The out-patient departments of hospitals would be mainly consultative. They would in the poorer cases take the place of the general practitioner as supervisor, but their most essential functions would lie in deciding a difficult diagnosis, in admitting to the hospital, and in advising doctors and patients as to the best procedures at the moment.

A Weak Point.

We are now met by a weak point in our management. It is common knowledge that recovery from acute rheumatism is often slow, and that neither cardiac inflammation nor chorea are conditions suited to ordinary convalescent homes. The alternatives are to keep them in a sick ward in the middle of a great town or to send them home. The weakness, then, in the present position is twofold: we are not doing the best for our rheumatic patients, and we are using beds in expensive institutions which are required for urgent or obscure cases.

Recovery Hospitals.

Each year it is becoming more evident that the great cities, and London in particular, require recovery hospitals in the adjacent country in vital touch with the mother hospitals. In an ideal hospital of this type the cases would have the necessary time for convalescence, would, in the surrounding grounds, be trained for physical exertion, and eventually be classified according to their ultimate degree of recovery, and they would also—a point of great importance—*continue their education.* The history of acute rheumatism would be continued in a sequel to the first hospital notes, and eventually the children returned to their parents with a short practical statement as to their capabilities.

One link in this chain requires the most careful consideration. There must be an intimate and vital connexion between the parent and recovery hospital. If the latter once drifts into a second-rate soul-less abode for "uninteresting cases," its value is lost, and it becomes a monument of inefficiency.

Pioneer Attempts.

Pioneer attempts have already been made in this country, as for example, at the Edgar Lee Home (Stonebridge Park), Broadstairs, at the Chiene Hospital, in Birmingham, and at Bristol and doubtless elsewhere. The Invalid Children's Aid Association in particular has taken a prominent part in this movement, and has recently started a home of 50 beds for females up to 14 years and males to 7 years of age at Hartfield, in Sussex. I have the honour to be one of the hon. visiting officers, and, though it is too soon to make a report on progress, I may remark that at present the results are encouraging. The gains in weight, the absence of attacks of rheumatism, the improved physique, and the happiness of the children who are continuing their education and living and sleeping practically in the open air, make me hopeful that we are entering upon a real advance in the treatment of rheumatic heart disease.

THE MINISTRY OF HEALTH.

Leaving now the rôle of hospitals, I come to the far-reaching activities of the Ministry of Health, Board of Education, and medical officers in the London County Council schools. Hidden away in their not superficially attractive reports there are some of the most fascinating chapters in modern medicine.

Official Medical Supervision: Infant Welfare.

During the first years of life we have the infant welfare centres, from 5 to 14 years the school medical officers, and from 16 years onwards the National Insurance. There are two breaks in complete continuity, one between the second and fifth years, and the other between the fourteenth and sixteenth years. The break between the second and fifth years, which in theory does not exist but in practice does, will doubtless be eventually bridged, and already is encroached upon, on the one side by the infant welfare organisation, and on the other by the school authorities. I have given considerable time and attention to the subject of acute rheumatism under 5 years of age, and though I am not implying that the disease is frequent then, I am sure that it occurs more often than is generally suspected, and that it is liable in these early years to cause great damage to the heart. Supervision between 2 and 5 years should eventually throw light on the earliest phases of the disease.

School Medical Service.

The period of *school life* is by far the most important in the history of acute rheumatism in this country. The incidence of the disease rises rapidly after the fifth year to about the tenth, and chorea, which I have seen as early as nine months, and occasionally in the second year, comes now to the front. It follows that the School Medical Service must take an ever-increasing share in the problem of prevention.

The appearance of chorea during the school age demands, I think, special attention. This manifestation is a most interesting one, for on account of the peculiar movements it becomes the most sensitive clinical index we have of active rheumatism, and it is also the manifestation which most frequently occurs alone and has a most striking sex incidence. Accordingly the study of the course of chorea gives us a very fair insight into the general behaviour of acute rheumatism, and when we recall that repeated chorea is a frequent indication of an early mitral stenosis, we suspect that both these lesions are pre-eminently the result of the smouldering activity of infection.

There is a passage in the report of the Chief Medical Officer of the Board of Education which deserves particular attention. It comes from a report in 1923 of the consultative committee on the differentiation of the curricula for boys and girls respectively in secondary schools. This committee draws attention to the present danger to health connected with the strain of examinations and of accomplishments added to the boys' curricula, and they note the relatively heavy household duties devolving at this age on many girls. I see in this passage light for the future and a sense of the reality of things, which cheers me almost as much as the sight of a flowering shrub upon the walls of one of those gaunt buildings with which we are so familiar.

Early Adolescence.

Still keeping our attention to the official side of the medical problems, we pass to the age of early adolescence, 14–16 years, and to the time when the child leaves the supervision of the school medical officer and has the choice of occupation immediately ahead. Everyone recognises that this is a critical period in life, and it is unfortunate that just at this time there is a break in the continuity of official supervision. The school medical officer is left and the National Insurance has not begun.

Factory Surgeons.

We come now to the factory surgeons, who are some of them school medical officers, and all of whom are encouraged by Sir George Newman to coöperate closely with those officers. These examine adolescents at 16 years entering factory life, and under that age those who enter such employment, including certain specified workshops, as requires an earlier training. Occupations which do not require a certificate of fitness constitute a weak link in the chain, perhaps more apparent because some three years ago the gap between 14 and 16 years was practically closed by the day continuation schools. The axe, however, fell, cutting through this slender neck and the young head of the school medical period tumbled into the basket of economy.

The report of the Departmental Committee issued this year shows, moreover, that the Factory Act has not proved satisfactory. In 1920 it was found that nearly 8000 individuals were rejected in the United Kingdom by the factory surgeons on medical grounds, and 576 of these for diseases of the heart and lungs. This clearly points to some leakage in that period between leaving school and applying for factory employment.

We see from this short outline of the official side of the medical problem that one of its most important duties is akin to that of the signal-men on our railway lines; at certain stages along the line of life these officials indicate danger and pull up the train. The medical practitioners and hospitals clear the track and endeavour to prevent further breakdowns.

Works Doctors.

There is another link, and one of increasing value in the chain of prevention. This is the appointment by many large industrial concerns of special medical officers, matrons, and nurses to supervise the health of their staffs. There cannot be any doubt that this link, forged though it may be on the anvil of strict business by the hammer of self-defence, must do great good, particularly when that service is far-seeing and kindly.

The General Practitioners.

As I have already stated, throughout their early life the doctor in general practice is taking an unobtrusive yet important part in attending rheumatic children, but as Dr. Carey Coombs has suggested, they could offer more special assistance by the formation of voluntary groups in various districts around some great city. In this way some point under investigation in the city hospital such as the incidence of the disease in certain areas or the appearance of a local epidemic, would enable them to use their special knowledge and experience.

When the insurance age is reached and, indeed, in every stage of life, the general practitioners who give time and interest to this particular subject can continue to furnish valuable data not otherwise to be obtained.

INCREASED COÖPERATION.

This raises a somewhat delicate subject, and my remarks must be looked upon as an expression of a purely personal view. Taking a broad outlook, there are three great medical forces in this country. The hospitals, with a magnificent history of past and present work but financially unstable; the Ministry of Health, young and powerful, with immense resources and advantages; and the general practitioners, with the all-important assets of experience of the dawn of disease and intimate acquaintance with their patients. Each can take a most valuable part in the prevention of acute rheumatism, but greater results are to be expected if these forces can be drawn closer together. Greater organisation between them would, in my opinion, enhance the value of the School Medical Service, which appears to me often to be in the position of a doctor whose patient has been under a consultant's care and returned to him without a note of guidance. Looking to the future for one of these forces I can only see one fate, and this is that the hospitals become the strong right arm of the Ministry of Health. I use the word "strong" advisedly, for to be strong there must be wide liberty of thought and action, and not the suffocating growth of "officialism."

For my part I should like to see skilled officers, somewhat on the lines of our hospital medical registrars, but representatives of the Ministry of Health, linking up the cases and notes of the rheumatic patients in our hospitals with those of the school medical officers, and bringing to us hospital physicians the particular lines of thought and investigation under the consideration of the Ministry and in turn keeping the latter in intimate touch with hospital activities. In another direction, also, there are great possibilities, and that is in the coöperation of hospitals and almoners with the Board of Education and their army of voluntary workers and the child care committees. From the standpoint of the rheumatic children they would give great assistance in following up these cases when they leave the hospitals.

ENVIRONMENT.

The influence of environment upon the incidence of acute rheumatism is one of the problems in prevention which appears to me particularly to need more extensive investigation. This aspect is one which I always associate with the honoured name of Sir Arthur Newsholme, who showed us the importance of urban life as a factor in causation. Damp and cold houses and districts tend to make acute rheumatism drift into a chronic course, and it is my belief that a child returning from hospital after an attack to such surroundings is certainly in great danger of chronic invalidism and likely to die in a few years. I am also most suspicious of cold winds when there has been a spell of hot weather and much dust in the towns, this combination producing tonsillitis and increasing the incidence of acute rheumatism. The medical officers of health would have a prominent part in this investigation, and already to my knowledge they are taking the problem in hand; the care committees, too, should prove invaluable.

NOTIFICATION.

I believe that a partial and temporary notification might be helpful. General notification in the present state of our knowledge would probably lead only to great expense and confusion. It might, however, be advisable to notify acute heart disease in childhood or chorea, or, again, obvious cases of acute rheumatism up to a certain age and for a limited time.

Contagion is an aspect which at present I should not care to be brought into prominence, believing that it does not take an important part in the history of acute rheumatism.

EDUCATION OF THE PUBLIC.

Two directions suggest themselves by which we can better instruct the public: the first, by means of educational leaflets and lectures, to bring home to parents, patients, teachers, and labour employers the dangers of the disease; and the second, to assist them in choosing industrial occupations and in recognising the limitations of employees who have been partially maimed by acute rheumatism. The Ministry of Health could, I believe, render a great service if they would publish a leaflet for the guidance of the public, setting out in simple terms the dangers of acute rheumatism, together with some simple instructions. In the other direction, the assistance of the public in the problem of employment, we require the best possible organisation for providing information for the guidance of those who have rheumatic children to place in life, such as schedules of suitable employments.

It certainly should become increasingly difficult for such a case to occur as recently came under my care. This was an undersized girl of 20 years with obvious mitral stenosis who was working as a bottle labeller underground, often in wet clothes, and lifting heavy cases. As a result she was admitted with a complete cardiac breakdown from which she has never recovered.

THE LOCAL FOCUS.

The next point is the removal of local focal infection as a factor in prevention. On June 7th, 1900, a man, aged 28 years, came to St. Mary's Hospital suffering from a sore-throat. The condition was one of acute tonsillitis and he had mitral and aortic disease, arthritis and muscular pains. There was a previous attack of rheumatic fever four years before. Dr. A. Paine, by plate culture, isolated a strepto-diplococcus morphologically and culturally indistinguishable from that we had isolated from the lesions of acute rheumatism. Intravenous injections into a rabbit produced acute aortic and mitral endocarditis. Fitz-Meyer, two years later, by extensive experiments supported these results, and later with Mr. George Waugh we repeatedly verified the ability of this micrococcus obtained from unhealthy tonsils to produce cardiac and arthritic lesions without any previous injury to the valves. This was the birth of the "local focus" in rheumatism.

No one can be *more* convinced than I am that the rheumatic infection has one important site of entry into the system, through diseased tonsils and particularly those which resemble in their deep lacunæ culture tubes. No one probably is *less* convinced than I that wholesale removal is indicated in the rheumatic child, or that the removal of the local focus shuts the door. Nature is not so easily managed, and I have seen severe carditis in a first attack occurring some years after a complete enucleation. Recent American statistics bear out this experience. I look upon the tonsils as an important barrier, but as no man is more dangerous than a clever man who has lost his capacity, so are badly damaged tonsils a constant source of danger. Careful treatment of the throat, naso-pharynx, and teeth in the prevention of acute rheumatism will be, in my opinion, a permanent factor. More investigation is required to determine other local foci as equally definite.

Research.

That further research is essential to advance the prevention of acute rheumatism is generally admitted. Opinions as to the best method for obtaining results will naturally differ, and I can but express my own views. I think there should be some institution in which the study of "rheumatism" should be continued uninterruptedly. In a centre such as London I would have this institution concerned with the entire problem of rheumatic affections, for it is my experience that in research one is liable if following a particular line to reach a dead end; some fact or some technical detail is lacking or the brain becomes wearied. Then one needs to leave that line for a ime and to work in other directions, returning later refreshed with new ideas or with new equipment. The problem of "rheumatism" would always have open spaces; now there might be fresh light thrown on malignant endocarditis, now a discovery in the bacteriology of rheumatoid arthritis or some chemical advance bearing upon fibrositis. Thus the vitality of the research would be kept active. Such an nstitution could be organised for training investigators and putting them in touch with our great hospitals and infirmaries, and would have at hand an ample literature. I admit the scheme is ambitious, but I am looking ahead.

A PRECIPITIN METHOD FOR THE STANDARDISATION OF "OLD" TUBERCULIN

AND THE EXPRESSION OF RESULTS IN STANDARD UNITS.

By GEORGES DREYER, C.B.E., M.A., M.D., F.R.S.,

AND

R. L. VOLLUM.

(From the Department of Pathology, University of Oxford.)

Old tuberculin, since its discovery by Koch in 1890, has been used extensively as a diagnostic, prognostic, and therapeutic agent in tuberculosis. Unfortunately, the proportion of the active principle of tuberculin present in different samples is not constant—as judged by the reactions they produce—but varies considerably, even when the method of preparation is more or less standardised. It is apparently influenced by several factors, such as the strain of *B. tuberculosis* used, the composition of the medium, the age of the culture, and the method of concentration. Although the active principle has not yet been isolated, numerous methods have been used o estimate the relative amounts of it present in different samples of tuberculin. The fact that its use is attended with some danger—an excessive dose may produce a severe general reaction—makes it necessary, in clinical work, to know with reasonable accuracy the strength or toxicity of each sample used; and in scientific work it is, of course, imperative, in order to obtain comparable results.

Methods of Standardisation in Present Use.

The methods of standardisation in vogue at present are:—

1. The determination of the lethal dose for tuberculous guinea-pigs. This is the official German method as used by the Staatsinstitut für Experimentelle Therapie in Frankfurt A/M.[1] [2] [3]
2. Von Lingelsheim's intracerebral method on normal or tuberculous animals.[4]
3. The quantitative von Pirquet, and the intradermal reaction on tuberculous guinea-pigs.[5] [6]
4. The quantitative von Pirquet on human tuberculous subjects.[7] [8]

The methods depending on the use of tuberculous animals have certain inherent disadvantages. Tuberculous guinea-pigs, even though infected at the same time with the same amount of inoculum, may show great variation in the extent of the resulting lesions. And even when the lesions are apparently similar the animals may show great variation in sensitiveness to the same dose of the same tuberculin. Therefore, in order to obtain reasonably accurate results it is necessary to use a large number of animals—which makes the method troublesome and expensive. These disadvantages apply even to the intradermal test, where both the standard and unknown tuberculin are used on the same animal, because different parts of the skin vary greatly in sensitiveness. Furthermore, unless the animal is in exactly the right stage of sensitisation the reaction may be very ill-defined; and even at best it is often difficult, if not impossible, to distinguish between two lesions caused by two different dilutions of the same tuberculin, unless the one is at least double the strength of the other.

Von Lingelsheim's method has the advantage that it can be used on normal animals, but it is applicable only to tuberculin which is free of glycerine, the latter being highly toxic for the nerve cells. The most satisfactory in vivo test is probably the quantitative von Pirquet, on human cases of tuberculosis, as modified by Ellermann and Erlandsen,[7] or by Cummins.[8] Even in this test it is difficult to distinguish between the lesions produced by the same quantity of two dilutions of the same tuberculin of less than 100 per cent. difference in strength. Furthermore, the test may be accompanied by some inconvenience and discomfort to the patient, as the lesions frequently persist from a week to a month before disappearing.

In consideration of these difficulties, it would obviously be of great advantage to have an in vitro test for the standardisation of old tuberculin. The complement-fixation reaction has been applied for this purpose, but the number of reagents employed and the difficulty of standardising them bring in several unavoidable sources of error which would tend to preclude it from being a satisfactory quantitative test.

It seemed to us that an in vitro test, involving the least possible number of reagents, whereby it would be possible readily and accurately to compare tuberculins of unknown strength with an established standard would be desirable, and that a precipitin test was likely to fulfil these requirements.

Precipitating Power of a Serum for Tuberculin.

The first difficulty which presented itself was to obtain a serum of high precipitating power for tuberculin. Calmette[9] and others have prepared sera which would precipitate tuberculin, and we obtained two samples of serum which had been prepared by immunisation of a horse with the whole bacillus. We found that their precipitating power for tuberculin was relatively weak, and furthermore, as Calmette had previously found, that the precipitation was not specific, since the serums precipitated mallein to about an equal extent. It was found that by the use of diaplyte (defatted) *B. tuberculosis* vaccine[10] to immunise a horse, a serum could be obtained which had a high precipitating power, not only for its specific precipitinogen, obtained by digesting the diaplyted bacilli with trypsin, but also against old tuberculin. It did not precipitate mallein, diphtheria toxin, or concentrated broth controls; its precipitating power for tuberculin was from 200 to 800 times as strong as that of the other serums which we tried.

However, the preliminary quantitative experiments showed that in comparing two tuberculins, very discrepant results were obtained, depending on the relative quantities of serum and tuberculin used. Using concentrated tuberculin, or dilutions up to about 1 in 50 with a constant quantity of serum, the precipitation increases with decreasing amounts of tuberculin ; but with high dilutions, ranging from 1 in 500 to 1 in 30,000, depending on the strength of the tuberculin, the degree of precipitation decreases with the quantity of tuberculin present. This being the case, it became necessary to work out in detail the whole quantitative relationship between serum and tuberculin. The details of these experiments, which are chiefly of theoretical interest, will be published later. The practical outcome of them was that it was found possible to measure with considerable accuracy the strengths of different dilutions of the same tuberculin or of different tuberculins.

Technique.

The technique which we have evolved for the standardisation of tuberculins by the precipitin method will now be described in detail.

(A) *Reagents and Apparatus Required.*

(1) Standard tuberculin ; (2) standard precipitating serum ; (3) normal saline for diluting serum and tuberculin ; (4) Dreyer agglutination tubes and stands ; (5) accurately graduated measuring pipettes, Dreyer dropping pipette, and dilution tubes ; (6) water-bath, 37·5° C. ; (7) artificial-light arrangement for reading tubes against dark background ; (8) six-magnification hand lens.

Details are as follows :—

1. The standard tuberculin we have used is the German Standard Tuberculin, kindly supplied by Geheimrat Prof. Dr. Kolle. It is the standard used by the Staatsinstitut für Experimentelle Therapie, Frankfurt A/M.

2. The precipitating serum, as stated above, was obtained by immunising a horse with diaplyte *B. tuberculosis* vaccine. The horse received weekly injections, intravenously, of doses increasing from 0·1 mg. to 225 mg., over a period of three months.

3. The sterile normal saline is prepared by dissolving 9·0 g. of chemically pure sodium chloride in 1000 c.cm. of freshly distilled water, and immediately sterilising in the autoclave.

4. The agglutination tubes employed are those used for the Dreyer agglutination technique. The inside diameter of these tubes is 5·5–6·2 mm. ; the outside diameter is 6·6–7·2 mm., and the length is 58 mm. The bottom is conical and the top is flanged to facilitate filling. These tubes, and all other glassware, must be thoroughly cleaned in acid, and then washed in distilled water until all traces of acid are removed. The tubes are then sterilised by dry heat. Agglutination stands containing three rows of 20 holes for agglutination tubes are the most convenient.

5. Pipettes, accurately graduated to *contain* 0·1 c.cm., 1·0 c.cm., 5·0 c.cm., and 10·0 c.cm., respectively, are required. The Dreyer dropping pipette, as used in the standard agglutination technique, has a total length of 19 cm., length of capillary portion, 2·8 cm. ; outside diameter of body of pipette, 5·0–5·4 mm. ; outside diameter of capillary portion, 2·36–2·41 mm. ; bore of capillary portion, 0·5 mm. The dilution tubes are test-tubes, 18 by 2·5 cm., without lips. They are sterilised by dry heat without plugging.

6. The water-bath must be regulated to maintain a constant temperature of 37·5° C., and should be provided with a device to keep the water-level constant. A satisfactory arrangement is described by Dreyer and Ward.[12]

7. An artificial-light arrangement for reading the tubes is essential, and it should be used in a darkened room. An adjustable lamp, fitted with an ordinary plain conical shade, covered on the outside with dull-black paper, is suitable. The end of the bulb should not project appreciably beyond the edge of the shade, and the lamp should be so arranged that the observer does not look directly into the light. The tubes to be read are held against the edge of the shade, the lower end tilted towards the observer, and the meniscus of the fluid in the tube should be slightly above the lower edge of the shade. It is desirable to place a dull-black cardboard on the table, and another resting against the farther edge of the lampshade, so that the observer may look through the tube against a dark background. A frosted bulb of 20 candle power is satisfactory. A stronger light obscures the finer degrees of precipitation, and should not be used.

8. A compound six-magnification hand lens of reputable make.

(B) *Method of Diluting the Tuberculin.*

Seven dilution tubes are placed in a stand and sterile saline is measured into them, the first receiving 9·9 c.cm., and each of the others 10·0 c.cm. ; 0·1 c.cm. of tuberculin is measured in the 0·1 c.cm. pipette. The outside and tip of the pipette are wiped free of tuberculin, and the contents are blown out into the first tube. The viscous tuberculin sticks to the walls of the pipette, and must be washed out by carefully aspirating the mixture in the tube and blowing out again. To ensure thorough washing of the pipette, this should be done 30 times. For this purpose it is convenient to use a teat. If the supply of tuberculin is not limited, this first dilution may be made in a similar manner, using 99 c.cm. of saline and 1·0 c.cm. of tuberculin. Having thus obtained a 1/100 dilution, further dilutions of 1/300, 1/900, 1/2700, 1/8100, and 1/24300 are made as follows. With the 5·0 c.cm. pipette measure, 5·0 c.cm. of the 1/100 dilution into tube 2. Wash the pipette in the dilution by aspirating several (at least 10) times, and after thorough mixing, carry over 5·0 c.cm. of this dilution into tube 3, and so on until the required number of dilutions has been made.

(C) *Method of Setting Up Test.*

Place a row of 20 agglutination tubes into the stand. With the standard dropping pipette, measure out into the tubes the following quantities of saline, tuberculin dilution, and serum dilution in the order named. (See Table I.)

TABLE I.

Tube No.	Saline (drops)	Tuberculin.		S.S. (drops)	Tube No.	Saline (drops)	Tuberculin.		S.S. (drops)
1	3	12	Drops 1/300	5 1/4	11	3	12	Drops 1/2700	5 1/4
2	5	10		,,	12	5	10		,,
3	7	8		,,	13	7	8		,,
4	9	6		,,	14	9	6		,,
5	10	5		,,	15	10	5		,,
6	3	12	Drops 1/900	,,	16	3	12	Drops 1/8100	,,
7	5	10		,,	17	5	10		,,
8	7	8		,,	18	7	8		,,
9	9	6		,,	19	9	6		,,
10	10	5		,,	20	10	5		,,

S.S. = Standard Serum.

One and the same pipette must be used throughout the whole operation. When changing from one reagent to another, or from one dilution to another, the pipette should be carefully washed out with distilled water, and dried by washing through with acetone, followed by gentle heating over a Bunsen burner. The use of an ordinary suction pump will greatly facilitate the washing and drying of the pipette.

When the reagents have been added to the tubes shake each one thoroughly in order from right to left—i.e., beginning with the tube containing the highest dilution of tuberculin. Place the stand in an *open water-bath* (not in a dry-air incubator) at 37·5° C., and arrange the water level so that the *column of fluid in the tubes is only one-half to two-thirds immersed*. Precipitation is greatly facilitated by this procedure.

It is desirable to put up each of the unknown tuberculins to be tested and each of the standards in duplicate. Two or more standard tuberculins should be used in each test, but if only one is available four or five dilutions of it should be made up independently to secure a true average of the readings of the standard tuberculin. As a general rule, it is necessary to put up only 15 tubes in each row—using the dilutions 1/900, 1/2700, and 1/8100 or 1/2700, 1/8100, and 1/24300. With strong tuberculins it is necessary to use the higher dilutions, and all but the very weak ones will show a good reaction in the 1/900 dilution after nine hours' incubation. In the case of very weak tuberculins on the other hand, one may have to begin with dilutions of 1/100, 1/300, &c. If the lower dilutions of strong tuberculins are used, a precipitate will come down almost immediately after the serum is added, but different tuberculins are found to have different reaction times, and the end-point is not usually reached until after nine hours' incubation. If left for a longer time the precipitation loses some of its sharpness, and is more difficult to read ; also the danger of infection becomes greater.

(D) *Reading of Results.*

The tubes are read in the manner already indicated under (A) 7. To secure uniform readings by different observers it is desirable to use permanent tubes showing standard and trace precipitation for comparison. The principal terms used in describing the different degrees of precipitation met with are : Total (T), standard (S), trace (tr), and nil (0). Total precipitation indicates a condition where the fluid in the tube has become quite clear, with a relatively large bulk of precipitate settled down at the foot of the tube. Standard indicates a degree of precipitation that can be seen readily with the naked eye. The fine particles are evenly distributed, of uniform size, and definitely separated from one another. Trace is the term applied to a very fine precipitation, barely visible to the naked eye, but readily visible with the six-magnification lens. Nil indicates that no visible precipitation has taken place, though the fluid may show some opacity.

Naturally there are degrees of precipitation which fall in between total, standard, trace, and nil; total minus (T –), where the fluid is clear, and the particles are large and well separated, and some have fallen to the foot of the tube. On either side of standard precipitation there is standard plus (S +) and standard minus (S –). In the former the particles are larger than those seen in standard precipitation; hey are uniformly distributed, and clarification is more marked; in the latter is seen a finer precipitation than standard. Similarly, there is a trace plus (tr +) and a trace minus (tr –), the former representing something more han a trace but less than a standard minus, and the latter being a very fine degree of precipitation visible only with the ix-magnification lens. In addition, a condition where there s only a very slight opacity, or an extremely fine degree of precipitation, barely visible with the six-magnification lens is designated as trace query (tr ?).

(E) *Expression of Results in Standard Units.*

The strengths of all tuberculins are expressed in standard units. We have chosen the Frankfurt standard tuberculin as the standard comparison, and have arbitrarily assigned to it a value of 100 units per c.cm. The value of any other uberculin in standard units is inversely proportional to the mallest amount required to produce the same degree of precipitation as the standard with the same quantity of erum under the same conditions. Thus, if twice the quantity of tuberculin X is required to produce the same degree of precipitation as the standard tuberculin under the ame condition, its strength is one-half of the standard—e., 50 units per c.cm.

(F) *Calculation of Units.*

The unit value is calculated from those tubes in the eries which show standard and trace precipitation respectively. The unit value is calculated for each of these two tubes separately, and the average is taken as the unit value of the tuberculin. If there are no tubes in the series showing exactly standard and trace precipitation, it is necessary to nterpolate for these values—e.g., if tube 4 shows S + nd tube 5 shows S –, S would be intermediate between hem. In Tables II., III., IV., and V. are shown the method of recording readings and calculating results.

TABLE II.—*Examples of Readings.*

Tube No.	Tuberculin—				
	Quantity in drops.	Standard.	"A"	"B"	"C"
		Dilution 1/900.			
1	12	T	T	T	T
2	10	T	T –	T	T
3	8	T	S	T	T
4	6	T	S –	T	T
5	5	T	tr	T –	T
		Dilution 1/2700.			
6	12	T –	tr –	S	T
7	10	S +	tr ?	S –	T
8	8	S	0	tr	S +
9	6	S –	0	tr –	S –
10	5	tr	0	tr ?	tr +
		Dilution 1/8100.			
11	12	tr –	0	0	tr –
12	10	tr ?	0	0	0
13	8	0	0	0	0
14	6	0	0	0	0
15	5	0	0	0	0

TABLE III.—*Calculation from Standard Readings given in Table II.*

Tuberculin.	Quantity of tuberculin in drops.	Reciprocals.	Units.
tandard	8 × 1/2700 = 0·00296	338·0	100
A ”	8 × 1/900 = 0·00889	112·5	33
B ”	12 × 1/2700 = 0·00445	222·5	66
C ”	7 × 1/2700 = 0·00259	386·0	114

TABLE IV.—*Calculation from Trace Readings given in Table II.*

Tuberculin.	Quantity of tuberculin in drops.	Reciprocals.	Units.
tandard	5 × 1/2700 = 0·00185	540	100
A ”	5 × 1/900 = 0·00555	180·5	34
B ”	8 × 1/2700 = 0·00296	338	63
C ”	13·5 × 1/8100 = 0·00167	600	111

TABLE V.—*Average of Standard and Trace Calculations in Tables III. and IV.*

Standard tuberculin = 100·0 units per c.cm.
Tuberculin "A" = 33·5 ,, ,,
,, "B" = 64·5 ,, ,,
,, "C" = 112·5 ,, ,,

For the accurate measurement and standardisation of tuberculin it is desirable—as in all other quantitative work—to make several determinations and to take the average as the final figure. We find that at least five determinations are required to give accurate results. Fresh dilutions should be made for each determination. The standard tuberculins must, of course, be put up each time with the unknown tuberculin, because slight variations in the time of incubation and in the temperature and water level of the water-bath have an appreciable effect on the degree of precipitation. Although the actual readings of any tuberculin may vary slightly from day to day its value, relative to the standard, should remain constant.

(G) *Precautions to be Observed.*

1. The serum must, of course, be absolutely clear and sterile. We have found that the Seitz laboratory filter is very efficient and satisfactory for removing sediment and contamination from serum, and it does not take out the precipitin. The serum must *not* be heated. The extent to which a serum may be diluted to give satisfactory precipitation will vary with its strength. The serum we have used gave good results when diluted 1 in 4.
2. Antiseptics, such as phenol, trikresol, or formalin should not be added to any of the reagents, as experiments have shown that when these antiseptics are present in a concentration sufficiently great to prevent bacterial growth, they interfere with the reaction and change the character of the precipitation.
3. The agglutination tubes which are used for the test must be of the diameter laid down. If tubes of larger diameter are used, the character of the precipitate changes and does not give sharp readings.
4. All glassware must be scrupulously clean.
5. The water-bath must be *open* and the temperature must be accurately regulated, and must be kept constant at 37·5° C. The water level must be carefully adjusted, so that only one-half to two-thirds of the column of fluid in the tube is immersed.

Results.

A series of carefully prepared dilutions of a sample of old tuberculin were made up by one of us and labelled *n*, *o*, *e*, *y*, and *x* respectively, and were tested and calculated by the other who did not know the key. In Table VI. are given the actual strength of the solutions, and the values found on a single determination.

TABLE VI.

Tuberculin labelled.	Tuberculin unit per c.cm.	Tuberculin unit per c.cm. found by precipitin test.	Percentage deviation.
n	100	93·28	6·72
o	45	46·58	3·51
e	27	27·59	2·19
y	12	12·12	1·00
x	5	5·04	0·80
		Average	2·84

Having thus established the theoretical accuracy of the method, it was necessary to compare different samples of old tuberculin to see whether the degree of precipitation depended entirely on the amount of active principle of tuberculin present, or if it were influenced by the proportion of peptone, salts, and glycerine in various samples. There appeared to be no correlation between the degree of precipitation and the amount of non-specific material in the tuberculins. Thus it will be seen from Table VII. that the strength of sample British 6 is only about 41 per cent. of sample British 5, while its viscosity was found to be three to four times as great.

In Table VII. are given the results obtained by examining 30 different commercial tuberculins of varying origin, taking the Frankfurt standard tuberculin as our standard. It is at once seen that different commercial tuberculins may vary enormously in strength—namely, from 33·2 to more than 400 units per c.cm. Furthermore, it was found that certain samples of tuberculin—namely, British 2, 3, and 4 alleged to be equal in strength to the Frankfurt standard—varied considerably. These tuberculins were found to contain 135·1, 33·2, and 46·0 units per c.cm. respectively, instead of 100·0. This being the case, it became necessary to test these samples, together with certain others showing great differences in strength by a recognised in vivo method, to find out if the results obtained by the precipitin test were borne out by the in vivo test. In our hands the quantitative von Pirquet reaction on human cases of tuberculosis gave the most satisfactory results, and it seemed likely that from the point of view of diagnosis and treatment of tuberculosis in man by means of tuberculin this method of standardisation should prove of greater value than tests on animals.

TABLE VII.

TUBERCULIN.	Units per c.cm. precipitin test.	TUBERCULIN.	Units per c.cm. precipitin test.
Frankfurt standard (1).	100	Frankfurt standard (1).	100
British 2 ..	135·1	Belgian 22 ..	254·0
,, 3 ..	33·2	,, 23 ..	249·8
,, 4 ..	46·0	French 24 ..	50·9
,, 5 ..	244·7	,, 25 ..	62·0
,, 6 ..	100·5		
,, 7 ..	69·5		
,, 8 ..	119·6		
,, 9 ..	95·2		
,, 10 ..	190·9	VETERINARY TUBERCULIN.	Units as above.
,, 11 ..	138·1		
,, 12 ..	117·8	Frankfurt standard (1).	100·0
,, 13 ..	271·3		
,, 14 ..	60·0		
,, 15 ..	35·4		
Oxford 16 ..	44·1	British 26 ..	6·4
German 17 ..	39·6	American 27 ..	14·8
American 18 ..	269·0	,, 28 ..	29·6
,, 19 ..	304·8	,, 29 ..	131·3
Danish 20 ..	421·6	Belgian 30 ..	19·8
,, 21 ..	47·5	French 31 ..	18·3

In our experiments, Cummins's modification of the von Pirquet reaction was used. A metal plate, 1·5 mm. in thickness, with a circular hole 4·0 mm. in diameter, is pressed firmly on to the forearm, so that the skin seen through the hole presents a slightly convex surface. The epidermis is scratched off within the circle by a sharp surgical needle, exposing the *cutis vera*. The scratching must not be sufficiently deep to draw blood. Two parallel rows of six scratched areas are prepared in this way, and six dilutions containing 2, 4, 8, 16, 32, and 64 per cent. of tuberculin respectively are rubbed gently into the exposed cutis using the blunt end of the needle, which has been previously dipped into the tuberculin. The standard tuberculin is applied to one row and the unknown to the other. The reactions are read at the end of 24 and 48 hours—by direct comparison of the lesions produced by the standard and unknown tuberculin. The intensity of the reaction is judged by the infiltration, colour, pustule formation, &c.

Each series of dilutions of each tuberculin was marked with a different letter, before being given to the persons (A. D. G. and F. G. H.) who carried out the test on the patients. The tests were read independently by G. D. and A. D. G., and the key to the tuberculins was in no case divulged until the final readings had been made.

In Table VIII. are given the result of the in vivo test of ten of the tuberculins recorded in Table VII. The results are expressed in standard units per c.cm., taking the Frankfurt standard tuberculin as equal to 100 units. The letters *a*, *b*, and *c* indicate tests on different patients. Each figure given in columns 3 and 4 represents the average of from two to five readings on the same patient. The individual readings from which the averages were obtained varied in some cases as much as 400 per cent. In columns 5 and 6 are given the average of all readings made by G. D. and A. D. G. respectively, and in the last column the average of all the readings made by the two observers. From the table it is seen that the results obtained by two different persons reading the same test may vary considerably, and that the values found for the same tuberculin when tested on different patients may show marked variations.

TABLE VIII.—*Human Cutaneous Test.*

Tuberculin.	Test.	Units per c.cm.				
		Read by—		Average of readings.		Average of readings by G.D. and A.D.G.
		G.D.	A.D.G.	G.D.	A.D.G.	
F.S. 1	—	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*
Brit. 2	*a*	110·1	137·0	110·1	137·0	123·6
,, 3	*a*	36·4	24·6	44·9	50·5	47·7
,, 3	*b*	53·4	76·4	—	—	—
,, 4	*a*	55·2	62·6	41·9	50·1	46·0
,, 4	*b*	28·6	37·6	—	—	—
,, 5	*a*	200·1	207·2	200·1	207·2	203·7
,, 6	*a*	57·5	81·9	57·8	74·0	65·9
,, 6	*b*	58·1	66·1	—	—	—
Ger. 17	*a*	83·3	102·5	75·3	80·7	78·0
,, 17	*b*	88·1	104·1	—	—	—
,, 17	*c*	54·6	35·4	—	—	—
Amer. 18	*a*	474·0	689·4	395·2	475·4	435·3
,, 18	*b*	316·5	327·5	—	—	—
,, 18	*c*	395·0	409·4	—	—	—
Dan. 20	*a*	237·6	109·1	237·6	109·1	173·4
,, 21	*a*	34·1	51·1	69·0	48·2	58·6
,, 21	*b*	98·8	42·3	—	—	—
,, 21	*c*	74·0	51·1	—	—	—

F.S. = Frankfurt Standard. Brit. = British. Ger. = German. Amer. = American. Dan. = Danish.

In Table IX. are recorded the results obtained by the precipitin and the in vivo tests respectively. It is seen that in the case of the Frankfurt standard tuberculin, and British 2, 3, and 4, the differences in strength found by the precipitin test is entirely borne out by the in vivo test. On the whole, the results obtained by the two methods run parallel. The average percentage deviation of the in vivo test results from those obtained by the precipitin test was found to be 34·54 for the ten tuberculins recorded.

TABLE IX.

Tuberculin.	Units per c.cm.		Deviation of B from A in per cent.
	A. Precipitin test.	B. Human cutaneous test.	
Frankfurt standard 1	*100·0*	*100·0*	0·00
British 2	135·1	123·6	− 8·51
,, 3	33·2	47·7	+ 43·68
,, 4	46·0	46·0	0·00
,, 5	244·7	203·7	− 17 77
,, 6	100·5	65·9	− 34·43
German 17	39·6	78·0	+ 96·98
American 18	269·0	435·3	+ 61·83
Danish 20	421·6	173·4	− 58·87
,, 21	47·5	58·6	+ 23·37
Average ..	..	.. ..	.. 34·54

From the data presented above, it seems justifiable to suggest that a satisfactory in vitro reaction for the standardisation of old tuberculin has been devised. There may be certain possibilities of error, as in the case of the standardisation of diphtheria toxin by Ramon's precipitation method,[11] where it is found that the change of the toxin to the toxoid by chemical or physical influences is not accompanied by any change in the precipitating properties of the toxin. We have been unable to detect any change either in the toxicity, as tested on tuberculous guinea-pigs, or in the precipitating properties of old tuberculin, when subjected to a temperature of 0° C. for six months, or to a temperature of 100° C. for 15 days, or to autoclaving for two hours at two atmospheres. Tuberculin, therefore, seems to be comparatively stable to temperature changes, and under ordinary conditions the precipitation and in vivo tests on any sample should continue to run parallel. If this is borne out by a longer series of experiments, the great advantage of the in vitro test is obvious. The time and expense required is reduced to a minimum, and a very high degree of accuracy can be obtained by comparing each unknown tuberculin with the standard tuberculin using a precipitating serum of standard strength.

In conclusion, we wish to express our warmest thanks to Captain S. R. Douglas, F.R.S., Prof. J. B. Buxton, and Major G. W. Dunkin for preparing the precipitating serum at the National Institute for Medical Research. Also to Dr. A. D. Gardner and Dr. F. G. Hobson for their kind help in carrying out the von Pirquet tuberculin test, and to Dr. G. R. Girdlestone for the facilities accorded us at the Wingfield Orthopædic Hospital. Further, to Geheimrat Prof. Dr. Kolle for kindly supplying us with the Frankfurt standard tuberculin, and to Dr. R. A. O'Brien, of the Wellcome Research Laboratories, for certain samples of tuberculin, and similarly to Prof. C. O. Jensen, of the Veterinary High School, Copenhagen. Our special thanks are due to Miss Jörgensen for the great assistance she has rendered us in the performance of the tests.

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EXTENSIVE HÆMORRHAGE INTO THE PITUITARY

IN A CASE OF ENCEPHALITIS LETHARGICA.

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With a Report on the Morbid Anatomy by

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AN autopsy on a case of encephalitis lethargica showed a condition of the pituitary gland which, we think, has not been described hitherto. On opening the skull the cerebral fluid was found to be under considerable pressure, and the pia slightly injected. When the brain had been removed, the pituitary, which was enlarged to about five times the normal size, was seen to bulge up out of the sella turcica as a soft purple-coloured tumour; the bony cavity was, however, not enlarged nor the bone eroded. The gland and mid-brain were examined microscopically by Dr. Ryrie, whose report follows. The brain showed beyond doubt that the patient was suffering from encephalitis lethargica. The pituitary showed an extensive and recent hæmorrhage into the anterior lobe. The interest of the case, we think, lies not merely in the rare glandular condition, but in its association with a new and largely unexplained disease.

The Pituitary Gland in Relation to Sleep.

Amongst the theories put forward to explain pathological sleep, and applied notably to the lethargy which is such an outstanding feature of epidemic encephalitis, that which supposes a derangement of pituitary secretion has received some attention. The work of Cushing [1] and others showed the relation between experimental hypopituitarism and sleep, and the clinical phenomenon of periods of lethargy in patients suffering from hypopituitarism. Blair Bell [2] discusses the action of the pituitary secretion in hibernating animals, with their deposition of fat and subnormal temperature. And many cases of encephalitis lethargica have shown as residua obesity, polyuria, or Fröhlich's syndrome, suggesting that the toxin may injure the gland.[3]

Acting on these facts and suggestions, the gland has been examined in a few fatal cases of this disease, but with no conclusive results. Hall [4] gives references to several cases in the literature of congestion of the pituitary, thrombosis of veins, necrosis of cells, or partial hypertrophy, but the changes were so slight that no pathological significance could be attached with any certainty to the lesion.

Apart altogether from encephalitis lethargica, hæmorrhage into the gland, unless occurring when a degenerating tumour is present, is rare; we can find only one reference. Marchand [5] described it in a case of epilepsy, but the hæmorrhage was too small to enlarge the gland. We regarded the finding of this unusual tumour, therefore, as opening up several interesting problems.

Clinical History.

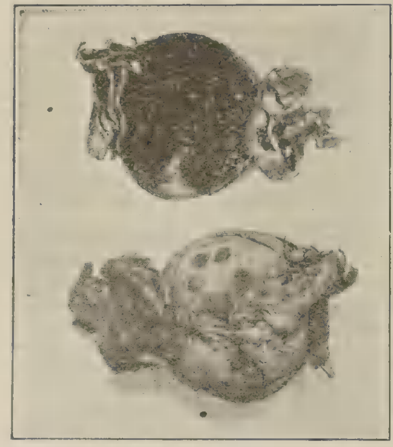
A brief summary of the case may be of interest, as it gives a striking and typical clinical picture of one form of the disease.

The patient, a man, aged 49, married and two children, was ill for a fortnight with marked insomnia, severe frontal headache, and occasional vomiting. Later he passed into a condition of restless delirium with violent choreiform movements; this alternated with profound stupor, when he would lie for hours motionless upon his back with waxy pallor, closed eyes, and mask-like face. He had the dry, furred tongue and fœtid breath usually present in severe cases. Ptosis was marked, he was at no time ever able to open his eyes. He had remission of symptoms with moments of unclouded intelligence during the four weeks before he died, also transient involvement of other cranial nerves. He had purulent conjunctivitis—I have noticed conjunctivitis of varying degrees of severity in 10 cases out of 97 that I have examined during the last epidemic. The optic discs and the visual fields were unfortunately not examined. The cerebro-spinal fluid was under increased pressure. The urine, which was not excessive, showed no sugar or other abnormality. The temperature was in the region of 101° F. for the first fortnight and then remained at 97°, rather a common feature, I think, of this disease. The pulse was unusually slow and he appeared to feel the cold unduly. The restlessness became more marked with much rigidity of the limbs, the patient became gradually weaker, and died six weeks after the onset of the disease.

The question may be asked, Is there any evidence from the previous history or from the present illness that the pituitary had been diseased for some time prior to the onset of the encephalitis? If the gland had been in a state of hyperplasia and then, as is often the case, had undergone degeneration we should expect evidence of hypopituitarism, and with a tumour as large as this, some "neighbourhood signs." There was, it is true, a vague history that during the past year headache had been complained of, and the eyesight had been deteriorating, but nothing more definite could be learned. The only suggestion that there was a deficiency of secretion was the patient's unusual hairlessness. Though pubic hair was present he had never shaved, and the skin was of that soft velvety type with much panniculus seen in cases of hypopituitarism. It is difficult to decide, therefore, on the actual cause of the glandular condition, but we think that its rarity and its occurrence in encephalitis lethargica, especially in relation to the "pituitary theory" of sleep, makes it worth while recording. Sections of brain tissue confirm the diagnosis of encephalitis lethargica.

Condition of the Pituitary.

The pituitary, after alcohol fixation, weighed 3 g. The photograph shows its actual size and there is obvious shrinkage during fixation. On section the tissue appeared as a hæmorrhagic mass except for a small pale area posteriorly. Microscopically, the entire central part of the gland is hæmorrhagic, only a narrow ring of non-hæmorrhagic gland remaining at the periphery. This peripheral part consists partly of compressed pituitary tissue and partly of apparently normal tissue, and in this zone, as in the capsule, there is blood pigment giving the iron reaction with potassium ferro-cyanide.



Hæmorrhage into pituitary body. Actual size. The upper figure shows the appearance on section.

The hæmorrhagic zone is intersected by interrupted bands of structureless tissue corresponding in distribution to the original stroma, and apparently continuous with the unaltered stroma of the peripheral part. This tissue does not stain by Weigert's fibrin stain nor by methyl-violet, but does stain irregularly by Mallory's connective-tissue stain.

Partly free in the blood, and partly in definite relation to this stroma are many persisting pituitary cells, eosinophil, and fairly well preserved. The hæmorrhage is not sharply defined from the peripheral zone, and there is no evidence of organisation. It is recent, though not terminal. The posterior lobe is not involved. There is nothing in the sections to indicate pre-existent neoplasm or other abnormality. The adjacent cerebral vessels show atheroma and extreme medial calcification.

Whether the hæmorrhage has resulted from the encephalitis or not, the histological evidence indicates that in this case it occurred during the course of that disease.

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LIVER ABSCESS.

A SERIES OF SIXTY-FOUR CASES.

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The recent papers on the subject of liver abscess by Manson-Bahr, Low, Pratt, and Gregg[1] and Neligan[2] make me think that this further series of cases may be of interest. Manson-Bahr and others, moreover, state that until recently the open operation was universally considered the correct surgical procedure. Neligan queries this, and asks: "Is not the aspiration treatment firmly established in tropical practice?" Certainly, as far as I am aware, it has been the operation of choice for at least the last ten years in Bengal; but apparently it is not so elsewhere, and I therefore wish to point out in this paper its many advantages. At the discussion of my original paper before the Medical Section of the Asiatic Society of Bengal in 1914, the chief criticism was directed upon my statement that the open operation was to all intents and purposes obsolete except under unusual conditions. As I desire here rather to prove the value of the aspiration treatment, only a short résumé of the cases is given (with remarks on those that are unusual). I have left the question of diagnosis, &c., untouched. This paper is, in fact, merely a continuation of my former one.[3] The cases which follow have all been operated on by myself, and the notes are from my own records. I mention this because hospital notes are not always as complete or exact as they might be.

Statistics of the Cases.

Of the above cases 63 were males with one female; 52 were Hindus, 11 Mahomedans, and one Britisher (my operative work since September, 1914, has dealt only with Indians). A history of dysentery was present in 44 cases, negative in 22; 29 cases were accustomed to take alcohol, 35 not. This is a large proportion, as most Indians are teetotallers. The age varied from 14 to 70, the average being between 30 and 40, but the majority of the patients were ignorant and doubtful about their exact ages. The duration of symptoms varied from five days to eight months; the former course was the most acute I have ever seen, the latter unusual, to which later reference will be made.

Of the total of 64 cases, 49 were treated by aspiration alone—in these are included three cases in which a preliminary cœliotomy was performed, as the diagnosis was doubtful; of these 40 were cured and 9 died. Four cases were aspirated, and later drained; there were no deaths. Nine cases were treated by incision, cleaning out of the abscess cavity with gauze, in some cases combined with irrigation, and the wound was then tightly sewn up in layers. In my first paper it was stated that the cases thus treated broke down later, but healing was very much hastened; in the above series it will be seen that several healed up without any complications and were rapidly cured. Again there were no deaths. Two cases were treated by incision and drainage; no deaths occurred.

The total death-rate for all methods amounts to 14 per cent. Taking the cases which were only aspirated, 28 were aspirated once, with 4 deaths; 12 were aspirated twice, with 3 deaths; 7 were aspirated three times, with 1 death; 1 four times, with a fatal result; and 1 five times, with recovery.

The largest amount of pus removed at any one aspiration was 96 oz., 3½ oz. more than my previous record, but over 100 oz. have been noted. The smallest quantity was 4 oz.; with multiple aspiration the largest amount was 220 oz. In the two cases in which drainage followed aspiration the pus amounted to 117 and 110 oz. respectively before the open operation was performed.

Rogers[4] has worked out the mortality from the open operation according to the site of the wound, giving 40·5 per cent. for the abdominal wall route and 73·4 per cent. for the chest wall route. There is something of a fallacy here, the important point being the site of the primary focus of the abscess; one, for example, deeply in the substance of the right lobe will be more difficult of diagnosis and be longer before being operated on, with greater destruction of liver tissue, than one on the anterior surface of either the right or the left lobe. This point is apparently not of so much importance with aspiration treatment. In the above nine fatal cases, four were operated on in the epigastrium, two in the nipple line in front, and only three laterally.

Summarising the figures somewhat roughly, there are 35 lateral operations and 25 epigastric, with four in abnormal positions; epigastric operations include both right and left lobe abscesses. In considering the cause of death in the fatal cases it is to be remembered that in this series all were advanced or very acute cases. In two cases there were multiple abscesses, combined in one with extensive ulceration of the bowel; two were practically moribund on admission and death occurred in a few hours; one was in bad condition and succumbed to cardiac failure ten days after operation; one was a very acute case and died in three days; and one an old man of 70, with albuminuria and glycosuria. One was a case of recurrent-abscess, with dysentery and phthisis, with death from recurring hæmoptysis. One patient was admitted with jaundice, developed pneumonia, and was probably a case of septic infection developing in an amœbic abscess before operation. Practically it almost amounts to this, that in uncomplicated cases there were no deaths.

Before proceeding to discuss treatment in detail, some unusual cases may be referred to: Case 19, an abscess pointing over the crest of the right ilium; treated by incision and suture, broke down, typical liver pus with living amœbæ discharged; the abscess was extra-peritoneal and had tracked down from the extra-peritoneal surface of the liver; Case 40, an abscess pointing in the right loin; Case 46, expectorating liver pus on admission.

Treatment.

It must be fully recognised that adequate treatment with emetine is as important as the operation. Neligan has noted the difference in comfort to the patient between the open operation and aspiration, but it may be as well to emphasise it again; on the one hand, you have the patient clothed in a mass of dressings and bandages in a moist heat which may be anything from 80° to 100° F., and on the other the patient unclothed with a scrap of cotton-wool and collodion over the aspiration puncture. Further advantages are: no frequent and often painful dressings, with risk of septic infection; the vast economy in dressings, to say nothing of time, both factors not to be neglected; and, moreover, the shortened period of the stay in hospital. In my uncomplicated cases with one aspiration it would be a week to ten days. The operative technique is remarkably simple, all that is necessary being an ordinary Potain's aspirator. General or local anæsthesia can be employed, depending upon the condition of the patient, preferably local, especially for cases in bad condition. The site of the puncture is important and should always be towards the upper surface of the abscess, particularly in epigastric cases. An abscess extending to the level of the umbilicus should be aspirated from above downwards from just below the costal margin, because as the pus is being evacuated the liver retracts upwards with great rapidity, and a puncture lower down may mean that all the pus will not be evacuated, to say nothing of the risk of breaking down adhesions and consequent escape of pus into the abdominal cavity. If an abscess is pointing, aspiration should be performed through as healthy skin as possible to prevent subsequent leakage.

I always have two bottles ready, and when one is full it is replaced by the other, so that the aspiration s practically continuous; an assistant, when the flow shows signs of weakening, uses the exhaust syringe without my closing the stop-cock on the ube attached to the cannula. If the flow is checked by the cannula becoming blocked the trocar is ntroduced again or a stylet. Every endeavour is made to empty the cavity completely, and the wall of the abscess should be searched over with the end of the cannula as the flow of pus diminishes; in this way a fresh pool may be found. When the aspiration s finished the puncture is sutured with one horsehair stitch to prevent any leakage and possible nfection, and the wound dressed with cotton-wool and compound tincture of benzoin or collodion. I wish to emphasise what I consider a most important point, which has apparently been overlooked by the writers who quote my previous paper, and that is he subcutaneous injection of emetine immediately he aspiration is finished. My practice in the last few cases has been to inject the emetine while the aspiration is going on.

The reasons for this are that with the emptying of the abscess cavity there is a negative pressure set up, and later an effusion of serum into it from outside; if, therefore, this serum can be charged with emetine it will be able to attack the living amœbæ in the outer wall of the abscess, which it is most important to destroy. The amount of emetine employed was at first gr. 1, later increased to gr. 1½, and now gr. 2 are always given. Emetine was given in all but seven cases, the average total amount being gr. 5·7, unless the patient was in a very bad condition. I consider that the injection of quinine or emetine into the abscess cavity is of no value except in so far that the emetine may later be absorbed, and it is preferable to give it hypodermically. In cases which require further aspiration emetine is administered in the same way.

Cases Treated by Other Methods.

In the above series of cases it will be seen that 15 were treated by other methods, and it is necessary to explain the reason. First, there were four aspirated and subsequently drained. Case 26 was aspirated five times by myself, then handed over to a colleague when I went on service, and drained by him. Case 35 was obviously septic on aspiration. Case 49 had nine aspirations, then infection through puncture. In Case 57 aspiration was unsatisfactory—epigastric abscess; I incised small cavity on the surface of the liver; hæmorrhage, gauze packing; if there had been no hæmorrhage the wound would have been sutured.

Secondly, two cases were incised and drained at once. Case 30, a doubtful swelling; the liver exposed and aspirated, no pus; recent adhesions broken down; abscess largely subdiaphragmatic; risk of peritoneal infection, hence drained. Case 40, skin adherent and inflamed; wound of attempted operation by village practitioner; sepsis.

Thirdly, nine cases were treated by incision, cleaning out the cavity with gauze and primary suture. This operation was first performed by myself over 12 years ago, and is a very useful procedure, particularly in those cases in which the diagnosis is doubtful or the swelling is in an abnormal position. A fairly common class of case is one in which there is an indefinite swelling in the epigastrium with a doubtful history, and to plunge an aspirator needle into this swelling on the off-chance of its being a liver abscess would be very unsound surgically. This operation covers the difficulty; in fact, in some cases I am inclined to believe it is the operation of choice. One point about it is that the possibility of infection through a drainage-tube is avoided, and there are no frequent dressings. Cases 14, 19, 27, 33, 34, 35, 43, 48, and 60 were thus treated; seven were of doubtful diagnosis and two in abnormal positions; seven healed by first intention, only two of which later broke down.

Manson-Bahr and others lay stress on the importance of a course of emetine-bismuth-iodide after operation. I have not been able to give this, chiefly on account of the financial condition of the hospitals of which I have been in charge, and, moreover, native patients rarely stop in hospital after they consider themselves cured. As regards the amount of emetine, gr. v. to x. should be ample. I consider the amount of emetine administered is often too great; speaking generally it acts as a specific or not at all, and I am certain that giving a big dose during the aspiration is most important. If an abscess has once formed emetine will limit its extension and quiet down symptoms, but not cure it; if there is suspicion of an abscess it is better to aspirate to be on the safe side. Case 33 was an example of the failure of emetine.

Considering that the total mortality of this series of unpicked cases in natives is only just over 14 per cent., I see no reason why it should be more than 5 per cent. in early uncomplicated cases with adequate treatment.

It may be of interest to quote the cases in my first paper treated by aspiration alone. They were 50 in number, with 38 recoveries and 12 deaths; the earlier cases were treated with ipecacuanha, the latter with emetine, but not so efficiently as is done now. Combining the two sets of figures: of 99 cases, 78 were cured, equalling 77·7 per cent., and 21 deaths, mortality-rate 22·3 per cent. Compare these with Rogers's figures of the open operation, giving a mortality of nearly 60 per cent.

Summary.

To conclude, aspiration combined with hypodermic exhibition of a large dose of emetine *at the time* is the operation of choice.

In cases of doubtful diagnosis, explore and either aspirate or clean out the cavity and suture the wound firmly. Emetine should be given at the same time. Drain only as a last resource, the sole indication being sepsis.

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Clinical and Laboratory Notes.

TWO CASES OF EARLY AND LATE ANAPHYLACTIC PHENOMENA

AFTER ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

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In view of the apparent rarity of true anaphylactic phenomena, it may be of interest to mention two instances of what would appear to be definite cases illustrating the peculiar reaction which may result from the injection of serum, the sequelæ being alarming, but fortunately not fatal.

Case 1.—Girl, aged 12½ years, admitted to City Hospital, Hull, suffering from a moderately severe attack of diphtheria. The history indicated that she was in the third day of the disease, with the usual onset. Membrane was present on both tonsils, right posterior faucial pillar, left side of uvula, and extending on to soft palate. Glands of neck on both sides much enlarged. Heart sounds normal. Throat culture definitely positive.

Shortly after admission the girl received an injection of 10,000 units of antidiphtheritic serum subcutaneously in the lower part of the abdomen. Within about five minutes of this injection a well-marked blotchy urticarial erythema appeared, involving the face, body, and extremities almost simultaneously. The œdema of the upper and lower eyelids was intense, and prevented opening of the eyes. The patient was obviously in distress, and the pulse at the wrist became practically imperceptible. She placed her hand over the heart and indicated cardiac embarrassment. The bed was tipped, brandy was administered by mouth, and hypodermic strychnine, gr. 1/60, was given without immediate improvement. The patient throughout was able to speak rationally and without effort. The heart sounds became very faint and the first sound in the mitral area was just audible. No increase or diminution of pulse-rate was noticed. The rash varied, as time went on, in intensity and colour, especially on the face and extremities, more particularly the former.

After about two hours the heart commenced to improve, although the pulse was very thready, soft, and of poor quality, but countable. Within four hours the rash commenced to fade, more particularly on the body, and the œdema of the eyelids became gradually less. At the same time the pulse showed an improvement. Within ten hours of the commencement of these phenomena the rash had completely disappeared without staining, and the patient appeared comfortable, the pulse being definitely improved.

It would appear that this patient had 8000 units of antitoxin one year nine months previous to the above-mentioned injection of serum for diphtheria without any ill-effects. No indications whatever existed of asthma.

The patient had an uninterrupted recovery with no complications and was discharged from hospital within 11 weeks.

Case 2.—Nurse, aged 24 years, was admitted to City Hospital on May 6th, 1924, suffering from diphtheria. She would appear to have been ill for 24 hours. Membrane was present on the right tonsil as an early and slight deposit. Culture from the throat was definitely positive. She received a sensitising dose without ill-effects, and 6000 units of A.D.S. at 11.30 A.M. The following morning she had an extension of membrane from the right tonsil on to the soft palate and right posterior faucial pillar. Membrane also present on the left tonsil, patchy, and very slightly adherent. The uvula was free. An additional 6000 units were injected. At 10.30 P.M. on May 10th she gradually changed colour and complained of nausea. She retched but did not vomit. The pulse at the wrist became poor and almost uncountable, and she developed a faint serum rash without elevation of temperature or joint pains. Her colour was very poor and rather characteristic of early cardiac paralysis in a case of diphtheria. On examination of the heart the sounds were regular but diminished. She received brandy and cardiac stimulants hypodermically, to which she did not react for an hour or two. Serum rash, although scanty, lasted for 72 hours.

She had an uninterrupted recovery and was discharged from hospital within 11 weeks. Throughout her illness there was no albuminuria, and it would appear, in view of the facts that she received serum early, that her throat was mildly affected, that she had received 8000 units A.D.S. seven months previously for diphtheria, that the cause of sudden change was more likely to be associated with anaphylaxis than early diphtheritic cardiac paralysis. In type she was adipose and unhealthy, showed no evidence of asthma, and states that she has no recollection whatsoever either of her temporary embarrassment or of the treatment she received during this somewhat alarming experience.

In both these cases the clinical symptoms appeared so severe that I felt justified in notifying the respective relations. I may add that the serum employed in both these cases was standard A.D.S., manufactured by a firm of repute.

I am indebted to Dr. J. Wright Mason, medical officer of health, Hull, for his kind permission to publish these records.

A CASE OF POISONING BY "VAPO-CRESOLENE."

By Edward G. Gibbs-Smith, M.D. Durh., D.P.H.,
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The following case of poisoning by the accidental drinking of "vapo-cresolene" may be of interest on account of its rarity, as I have been unable to find a similar case in medical records. Vapo-cresolene is a well-known American preparation which has a large sale in this country, and is commonly used as a remedy for whooping-cough. It is put up in a specially made square indented bottle so that it can be recognised in the dark. Directions are printed on the label telling what antidotes to take in case the preparation is taken internally by mistake.

Messrs. Allen and Hanburys are the British distributors, and they have kindly provided me with the following description of cresolene: "Vapo-cresolene consists practically entirely of a mixture of free creosols or cresylic acids. These, of course, are members of the phenol group, and vapo-cresolene may therefore be considered to consist practically entirely of phenols, although it contains only a very small amount, if any, of actual phenol (carbolic acid)."

The patient, a healthy woman, 28 years of age, drank from a bottle about two teaspoonfuls of vapo-cresolene in mistake for cough mixture. She immediately went for help, drank a tumbler of water, and within five minutes became unconscious. I saw her 15 to 20 minutes after she took the poison. Her face was pale and puffy; very slight cyanosis; lips burnt and swollen; slight discoloration on the chin; fauces were burnt on both sides, the burnt patches extending down as far as could be seen. The breathing was regular but somewhat hampered by a large amount of secretion; pulse 120–130, fairly good; skin rather cold but not moist; temperature subnormal (97° F.); pupils slightly contracted. The poison was taken at about 12.30 A.M. on Oct. 4th. At about 1 o'clock the following treatment was commenced: Alcohol by the mouth, strychnine 1/60 hypodermically, sulphate of soda, and olive oil. She remained unconscious, with periods of delirium, and treatment had to be administered by force. At 4.30 A.M. her general condition became worse, the skin was cold and moist, and signs of collapse were apparent. 7–8 c.cm. of brandy were then injected between the scapulæ; within ten minutes of this she rapidly regained consciousness and was able to say exactly how the accident happened. At this stage she complained of burning and soreness of mouth and throat, giddiness, and general weakness. More olive oil and solution of sulphate of soda were given, and a little later she vomited a considerable amount of partly digested food, oil, &c., which smelt strongly of cresolene. A fair quantity of urine was also passed, almost black in colour. There was constant coughing, and after 24 hours sloughs began to come away in considerable quantity and continued to do so in diminishing amounts for three days, after which mucus only was expectorated. During this period the temperature rose to 100·6° on one occasion.

Further treatment consisted of spraying and gargling with dilute glycothymoline, and swallowing slowly dilute bovinine. The latter was given as an application to the damaged tissues as well as for nourishment. When the sloughs had finished coming away an examination with the laryngoscope showed no inflammation of the vocal cords, but the surrounding parts were somewhat congested, and small quantities of mucus were adherent in places.

The case presented no signs of œdema of the glottis or other serious complications. By the ninth day the patient had made a good recovery and was able to leave home.

I append the analyses of two samples of urine, kindly made for me by Messrs. Allen and Hanburys.

(1) Sample of urine passed at 5 A.M. Oct. 4th, 1924: Colour and appearance, bluish-violet containing some suspended matter. Reaction, alkaline; sp. gr., 1036; albumin, distinct trace; sugar, absent. The sample affords distinct evidence of the presence of a phenol, and the bluish-violet coloration appears to be due to the presence of indoxylsulphonic acid, due probably to the ingestion of a phenol. The presence of pyrocatechol and hydroquinone is also indicated. The deposit consists of some quantity of epithelial debris and numerous crystals of triple phosphate.

(2) Sample of urine passed about 6 P.M. Oct. 5th: Colour and appearance, greenish-brown, turbid; reaction, alkaline; sp. gr., 1039; albumin, distinct trace; sugar, absent. The sample yields no indication of the presence of a phenol and gave no reaction for indoxylsulphonic acid. The deposit consists of amorphous urates, numerous crystals of triple phosphate, and some epithelial cells.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF OBSTETRICS AND GYNÆCOLOGY, EPIDEMIOLOGY AND STATE MEDICINE, AND THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

NOTIFICATION OF PUERPERAL SEPSIS.

A SPECIAL combined meeting was held under the presidency of Dr. RUSSELL ANDREWS, on Nov. 6th, of two sections of the Royal Society of Medicine jointly with the Society of Medical Officers of Health. The meeting was called in the following circumstances.

Sir George Newman, in May, 1924, addressed a letter to the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, stating that the Minister of Health, after consideration of a report on maternal mortality recently issued by the Ministry, was anxious to take such steps as possible to reduce the incidence of maternal mortality and particularly of puerperal sepsis, and he therefore asked for observations from the Section as to the administrative action which might suitably be taken in this matter "especially with regard to the terminology and definition of puerperal fever . . . . as may lead to the prompt notification of the occurrence of this morbid process as soon as symptoms suggestive of septic infection become manifest, that adequate nursing and treatment may be ensured. . . ."

The Council of the Obstetrical Section referred the matter to a subcommittee consisting of Dr. Russell Andrews, Sir Ewen Maclean, Mr. Aleck Bourne, and Dame Janet Campbell. This subcommittee's suggestions were brought before the Council of the Obstetrical Section on July 3rd, and the question of the actual wording was left in the hands of Dr. J. S. Fairbairn, Dr. H. Williamson, and Dr. Russell Andrews. They reported as follows to Sir George Newman:

"Any case in which there is a rigor or a temperature of 102° or higher for 24 hours, during the first ten days after confinement or abortion, must be notified.

"Get rid of the official term 'puerperal fever' and use in its place the term 'puerperal sepsis.'

"Puerperal sepsis is a febrile condition of the nature of wound infection, arising after labour or abortion, due to bacterial invasion from, or absorption of, products of bacterial action from some portion of the genital tract,"

nd asked him to make further suggestions on their report. Sir George Newman later pointed out how important the matter was, as it might influence future legislation, and, fter discussion at a further Council meeting, it was thought better to submit the matter to a meeting of the whole Section, nd at the same time obtain the views of the Section of Epidemiology and State Medicine and the Society of Medical Officers of Health.

Dr. J. S. FAIRBAIRN opened the discussion. He aid: To compress what I have to say within the mits allowed, I will confine my remarks almost ntirely to two points—(1) What should be notified nd (2) the pros and cons of notification. There will probably be a divergence of opinion in this meeting regarding the definition of what should be notified equal to that among the members of the subcommittee—i.e., as many opinions as individuals present. Support will surely be found, however, for the general principle that notification is useless unless the early and suspicious cases are included as well as those of undoubted puerperal sepsis. The Scottish Departmental Committee considered the matter, but feared to make any definite recommendation. The one suggested by the subcommittee to include early and suspect cases is before you—"Rigor or temperature of 102° or over for 24 hours"; it was the shortest and most comprehensive that could be arrived at; if anyone here thinks he can devise a better, let him submit his effort to the meeting to see if it meets with a wider acceptance.

For my own part I have found it helpful, and perhaps others may find so too, to bear in mind the type of case that we would consider a danger to nurse in a ward with other lying-in patients and the usual hospital procedure in dealing with it. True, the risk of contagion to others is very much less when the patients are already isolated in their own homes, though there is even there the risk of conveyance of infection to others by doctors, midwives, and maternity nurses; moreover, notification concerns also patients delivered in nursing homes and maternity hospitals of all sorts and kinds. In domiciliary practice, nursing homes, and in many of the small maternity homes that have sprung up of late, there are not the facilities for the thorough investigation of suspect cases that a big hospital offers, so that the greater delay in reaching a definite diagnosis may be set off against the lesser risk of spread.

In other words, we shall not be far out if we take as our guide the conditions that might be regarded as necessitating isolation and special investigation if they occurred in a patient in a lying-in ward. Though many of the cases coming under the suggested definition will turn out to be infections of the urinary tract or other non-genital area, and in many of the remainder the fever will subside rapidly without further complication, I think most of my obstetric colleagues would agree that they would have all such cases forthwith moved into the observation ward; delay is not worth the risk involved.

In case this method of putting it may not appeal to all, I will set the argument out in another way. Notification only comes in when our first line of defence—prevention—has been breached; the next line to be held is that of catching the disease early and scotching it, and that is only possible if the suspicious cases are included. Treatment is likely to be most effective in the early stages, and if notification is to be preventive of further spread, a trifling and transient pyrexia, which may be the start of an outbreak of more serious infection, should not be excluded.

I take it that I am justified is assuming that I have now put the case for the notification of suspect cases so clearly that the meeting is with me and that the only problem left to it is merely that of framing a better definition than the one suggested.

Notification to Include Suspicious Cases.

I will therefore proceed to the next point, the discussion of what can be said for and against a notification of puerperal sepsis wide enough to include the suspicious cases as well as those definitely diagnosed as such. In a characteristic obiter dictum, Prof. E. W. Fothergill has remarked on the curious fascination notification possesses for some minds. The best way to escape being fascinated by it is to look on it as a means to an end—and that end, the reduction of septic death-rate in child-bed—and to consider how it may be made to lead up to that end. The administrative action that must follow the receipt of a notification falls into two categories, according as it concerns the individual case notified and as it concerns the public. In the first category come the measures for determining the nature of the infection, the nursing and treatment of the patient, and in the second those for tracing the cause of the infection, preventing its spread, and collating the results obtained.

When the patient can afford such special services as a second medical opinion (which should be one with obstetric experience), bacteriological investigation, and adequate nursing, the duty of the health officials will be to satisfy themselves that such facilities have been made use of, and to be informed of any other particulars they may require, such as the results of examination and treatment. If, on the other hand, from local conditions or the economic position of the patient, full investigation is not possible, then arrangements should be made to provide these services, and, so far as can be, the policy should be to encourage and develop such local provision as is already in existence, both in the case of those able to pay and those who are not. The creation of new officials, without regard to the interests of those already trying to provide such services, whether private practitioners or voluntary hospitals, will in the long run be detrimental to the best interests of the maternity service as a whole.

By this means the cases notified as suspect will be narrowed down to those of true genital infection calling for special management and precautions to prevent its being carried to others. The care of the individual patient must, however, be kept in the foreground, and the measures for the public health and for obtaining information regarding causation made as little obtrusive as possible. Thus special medical advice, nursing or removal to hospital, or other provision clearly to the benefit of the patient must be the chief consequence of notification. Though removal to hospital cannot be compelled, it must be urged whenever the chances of the patient will be increased thereby, and if proper provision for the removal and reception of the patient is made, its benefits will soon be generally recognised and little persuasion needed.

Provision for those patients requiring, but hitherto unable to obtain, special investigation and treatment and the measures taken to limit conveyance of infection will be acknowledged as all to the good. Also if notification can be made to lead to an increased knowledge of the disease, it will with equal certainty lead to its lessened incidence, and hence information collected in this way from areas in which success has or has not been attained, and of the factors underlying such success or failure, is bound to be of value. I would emphasise this side as possibly the one that is likely to be most fruitful in the prevention of puerperal sepsis.

The Limitations of Notification.

But doubt must arise in the minds of many whether the notification of all suspicious cases is a possibility, and, if even it were, whether it will make much impression on the incidence of the disease. In vast numbers of confinements temperatures are not taken and recorded properly, and whatever standard is adopted there are numbers of mild infections which will escape notification and yet may develop into serious infections or be a danger to others. Foul venereal warts, vulval ulceration or vaginal discharge may cause unexpectedly little disturbance to the affected patient during her lying-in, but be virulently infective to others, and, indeed, septic conditions of all kinds in man, woman, or child may be the starting-point of genital infections in child-bed, so why single out only the puerperal infections? In all infections it is the carriers, the ambulatory and unrecognised cases that are the greatest danger, and one has only to recall both the puerperal cases that would escape notice and the causes other than puerperal infections that may be the starting-point of an outbreak to realise the limitations of notification.

Casting the net widely will certainly make the life of the practitioner who does much midwifery so much more of a nightmare than it now is that only the most thick-skinned will survive and many will be driven to give up a side of their work that is already a heavy burden. Patients and their households are not altruistic enough to take into account the lessening of risk to others and the value of increased knowledge, if attained by worry and inconvenience to themselves, and sullen opposition and resentment at official inquisition may more than counter-balance any problematical gain. Resentment will be aggravated if such further administrative action is taken as that suggested both in the Ministry of Health report and in the Scottish Committee's report—viz., that all deaths in child-bed should be inquired into or that post-mortem examinations should be made in all cases; this has been urged in some of the public discussions arising out of the publication of these reports. One form of notification that has also been put forward is much more reasonable as affording useful information in tracing the cause of infection, with no fresh formality; it is that of the addition to the birth notification form of the name and qualifications of the persons actually present at, and responsible for, the delivery of the woman.

Help for the Practitioner: Voluntary Notification.

Before concluding I would like to ask the views of our public health colleagues on the following suggestion. The immediate notification of suspect cases is obviously out of the question; it would probably involve some amendment of the Notification Acts, and certainly some years must elapse before the machinery for carrying out the measures that should follow notification can be set up throughout the country. I would ask them if it is not possible to organise, in some areas at any rate, obstetric consultations, bacteriological examinations, domiciliary nursing, and, if possible, a certain amount of hospital accommodation, both for observation and for nursing and treatment. As soon as the most essential parts of the machinery can be put together, the practitioners in the area could be informed and asked to notify voluntarily all cases of fever in child-bed; the general adoption and success of this form of notification, especially for those patients in need of public assistance, would be proportionate to its efficiency and to the advantages it offered to patient and practitioner being readily recognised. In this way less time would be lost and much valuable experience gained, both by the practising and administrative sides of the profession. The report of the Scottish Departmental Committee makes this suggestion (par. 102) both in connexion with notification and the investigation of deaths within a month of the termination of pregnancy, and states that a form of voluntary coöperation has already been worked in Aberdeen and elsewhere.

The reports recently published and Circular 517 of the Ministry of Health show the necessity for action—a need long recognised by this Section as reference to its Proceedings will show—and both the Ministry and the local authorities are being urged to take action. Let us hope it will not be precipitate action, but considered action taken, if possible, after the possibilities have been explored by local effort, in some such way as I have suggested.

Dr. R. **DUDFIELD** considered that the reason that notification was so unsatisfactory was because the definition of puerperal fever was so indefinite. He personally would like to see the term puerperal fever kept for purposes of notification, since it is the term in use in other countries and, moreover, the public know what it means. He would like to see the profession in a position to certify suspect cases. He agreed with Dr. Fairbairn that closer coöperation between public health departments and private practitioners would be desirable, and he did not think the scheme outlined by Dr. Fairbairn would be at all impracticable. Dr. Dudfield made two constructive suggestions: (1) That the law should be altered to allow a practitioner to notify his suspicion that his patient has puerperal fever, thus obviating any delay while waiting for a certain diagnosis; and (2) that some public body, such as the Ministry of Health or the Medical Research Council, should appoint a small committee of experts to collect and digest information relating to notified cases. Such a committee could formulate a questionnaire which could be circulated to medical officers of health and through them to practitioners. Practitioners should be offered an adequate fee for filling it up, and the expert committee would then be in a position to investigate the notes made by practitioners in a convenient and uniform order. All inquiries could be made in writing to the M.O.H., and from the data collected some lines of dealing with the disease might be worked out. The cost would, of course, be considerable, but it was highly probable that such a committee would not require to function for many years if the profession generally coöperated heartily. To show how unsatisfactory was notification under present conditions, Dr. Dudfield quoted an estimate by W. E. Fothergill of the proportion of cases escaping notification in 1920. Fothergill estimated that in that year there must have been 70,000 to 80,000 cases in England and Wales; the cases notified during the year numbered 2898, rather more than 4 per cent. of the lower estimate (70,000).

The Need for Better Supervision of the Midwife.

Dr. R. A. **LYSTER** said that investigations into the possible causes of maternal mortality always led to one result—namely, that the chief and almost sole cause was bad midwifery practice. Experience in the supervision of midwives for the past 20 years had convinced him that the level of midwifery practice could be substantially raised by efficient supervision and inspection. The Midwives Act was obviously intended to create a body of midwives practising under close supervision and inspection, but that intention had never been carried out. Midwives exercised considerable influence through their societies and they control to some extent the Central Midwives Board. By means of this influence they had successfully prevented the organisation of schemes whereby their work could be properly checked and supervised. The unfortunate result was that 20 years working of the Midwives Act had resulted in little or no improvements in mortality connected with midwifery or mortality among newly-born infants. As an illustration of the manner in which notifications could be made entirely ineffective he referred to the working of the Notification of Births Act, 1907. Although midwives had to notify the birth within 36 hours, yet no official visits were paid by health visitors to that house during the first ten days. It was the mortality among mother and infants during these ten days that had shown so small a diminution during the past 20 years, and Dr. Lyster had no doubt that merely by the introduction of regular visits by health visitors immediately after the notification of the birth has been received a very striking improvement would result. In practice, the payment of subsidies to midwives in sparsely populated districts was found to be unreasonably costly when the total cost was compared with the number of confinements attended. It was far cheaper and more satisfactory to provide maternity homes. Maternal mortality would, of course, be substantially and immediately reduced by the provision of maternity beds for complicated cases, and for those cases whose home conditions are unsuitable. To these he would add the cases occurring in sparsely populated districts. Notification, unless it could be accompanied by substantial schemes of practical utility, was worthless from a preventive point of view. In his own area the notified cases of puerperal fever fell short of the deaths from that disease. The practical way to bring the practitioner into prevention was to start by paying him a fair fee for a full report on these cases. The proposals now being made in the way of amendments of definition and regulations for notification were quite sound and would be useful, but only if we could arrange a definite scheme of dealing practically with these notifications. The obvious course was for the notification to be followed by an offer of assistance of various kinds. If the case could be nursed at home, then an offer of skilled nursing assistance should be the immediate result of the notification. If operative treatment was necessary, then an institution must be at once available for the case, or in cases that might be treated at home the services of a consultant should be forthcoming on the request of the practitioner concerned. Last, and not least, there was the question of the supply of nourishment to such cases, altogether apart from the general question of such provision to expectant and nursing mothers.

A Royal Commission?

Dr. T. W. **EDEN** observed that reference had been made by several speakers to the fact that notification as at present carried out was unsatisfactory; this was the salient fact to be considered. Why was it that the present system had so completely broken down? There were good reasons. The two questions which the practitioner asked himself were (1) Is it a case of puerperal fever? and (2) Need I notify it? The first question was one of honest doubt and the second was caused by a desire to call it by any other name if he possibly could, because it was fixed in the public mind that if the case was indeed infected he was to blame. Thus, the practitioner's attitude with regard to notification of this disease was quite different from his attitude with regard to notification of other diseases. Now it was obvious that without the willing coöperation of the practitioner any scheme would break down. It was, in Dr. Eden's opinion, a mistake to approach the subject from the aspect of notification. At the earliest stage the whole field of puerperal morbidity must be brought into view. Would it not be possible to organise a system of puerperal observation wards to which practitioners could be encouraged to send all cases which seemed to be going wrong? In that case the odium of notification would be taken off the doctor's shoulders. Liberal State assistance would, of course, be required. Dr. Herbert Williamson, who was unfortunately unable to be present that evening, had suggested that the subject was worthy of a Royal Commission, but even if this were not considered possible, some committee of investigation should be set up. Some form of national midwifery service was essential. It was difficult for the Ministry of Health to keep in touch with the practical needs, but if the subject could be approached as a whole by a committee composed of both medical and lay members, some broad scheme might be worked out to meet requirements.

Needs of the Practitioner.

Dr. C. E. S. **FLEMMING** pointed out that notification was only a part, and by no means the most important part, of the process of prevention. The replacement of the term puerperal fever by that of puerperal sepsis was a practical step from the practitioner's point of view, since there were certain febrile conditions not due to sepsis—for example, influenza; the diagnosis and selection of cases for notification must be left to the practitioner. He would doubtless be grateful for a second opinion at an early stage; it might be difficult, however, to find a sufficient number of experts. The quarter in which notification had to be made was another point requiring consideration; in some cases a practitioner now had to notify to an M.O.H., who was his rival in practice. Dr. Flemming quoted a case where a patient of a certain practitioner went septic; he found, subsequently, that the district nurse who attended this patient was also nursing two infected puerperal cases, both being patients of the M.O.H. of the district. It should be the duty of M.O.H.'s to inform the midwife and the nurse in attendance when any case had been notified as septic. Notification had only a limited use in preventing infection. If mild cases of sepsis which were likely to recover were notified there would be a further advantage, in that the opprobrium attached to a case which did well was much less than that attached to a fatal case. Moreover, medical men doing antenatal work should have the power, or even the duty, of notifying those antenatal cases which were in unsuitable surroundings, and some provision should be made for the removal of these patients into proper conditions. Notification was useless if there was nowhere to send the patients; the isolation hospital was now the only place where they could be sent, but it was essential that someone should be there capable of looking after them.

Dr. W. BUTLER said that puerperal sepsis, its origin and prevention, its clinical and pathological identity fell within the sphere of action of preventive medicine as surely as did small-pox or scarlet fever. To attain this object, divergent interests must first, as far as possible, be reconciled. To this end he suggested a broader basis for notification and at the same time a definite specification of the clinical phenomena it is sought to embrace under the statutory obligation. The suggestion of the subcommittee of the Obstetrical Section was precise and met these requirements. But obviously, and even fortunately, there was embraced in this definition a variety of conditions which it would be incorrect and misleading to describe as puerperal sepsis. He suggested sustained puerperal pyrexia as a suitable condition for notification to the medical officer of health.

Dr. HAROLD SCURFIELD noted that all speakers agreed that notification had been a failure. There seemed to be an impression among practitioners that sepsis following a miscarriage need not be notified. He agreed on the importance of working out a scheme for dealing with cases before the details of notification were discussed. Tuberculosis was not notified so well as some people appeared to think; indeed, in all diseases notification appeared to vary with the efficiency of administrative measures for giving help to the practitioner. At Sheffield when he was M.O.H. there, the only resource for cases of puerperal fever was the Poor-law hospital. He agreed that any suggestions made should be coupled with a strong recommendation that a well-thought-out and comprehensive administrative scheme should be got out.

A Plea for the Midwife.

Dr. MARY KIDD put in a plea for the midwife, who was very badly paid and worked against heavy odds; could she perhaps be provided with an allowance for rubber gloves and perhaps also with a sterilised outfit by the local authority? Many mothers would much resent the intrusion of a health visitor on the second or third day after delivery, especially if her visit involved some asperities between her and the midwife. Inspection by health visitors would be rather hard on midwives since the former were often untrained. Women would be more willing to go to the Poor-law hospitals if only the relieving officer did not have to be interviewed; this formed a difficulty which surely might be swept away.

Sir EWEN MACLEAN said that the consultative council of the Welsh Board of Health had investigated the conditions of puerperal mortality in Wales, where there were 5·41 deaths per 1000 births against 4·11 per 1000 of the general population of this country. The facts which emerged from this investigation would be the subject of a report by the Ministry of Health. In Wales notification was very little practised. Directly, or by implication, blame had been laid on the practitioner and on the midwife for omission to notify, but the real reason why notification was not carried out was the complacency of the public. The patient often raised objections to notification, or at least was quite callous as to whether it was done or not. Notification, indeed, brought no help to her. If it became known that notification resulted in benefits, prejudice would soon be swept away.

Prof. LOUISE McILROY suggested three reasons for the failure to notify: (1) It brought the practitioner into disgrace and therefore required courage; (2) it was difficult to notify puerperal fever, because it was difficult to recognise it; (3) no adequate treatment was given when notification had taken place. In fever hospitals the patient was often put under the care of a junior medical officer, and might indeed even be curetted on admission. A large hospital in the London area devoted exclusively to these cases and staffed by experts might help. The provision of post-graduate courses for practitioners was desirable.

Increased Incidence after the War.

Dr. T. H. C. STEVENSON said that from Dr. Lyster's remarks it would have seemed that 100 per cent. of the cases of puerperal fever occurred in patients under the care of midwives. It would surely be a matter of practical utility to ascertain the proportion of cases occurring in the practice of medical men. Immediately after the war, when presumably the cases attended by midwives alone must have diminished and those attended by practitioners increased, the change in condition was accompanied by a sudden and considerable rise in puerperal fever. Dr. Stevenson did not draw any conclusion from the circumstance, but wished to call the attention of the meeting thereto. The term puerperal fever had been replaced in the classification of the Registrar-General by that of puerperal sepsis, owing to the general feeling that this should be done. As to the number of different conditions tabulated under that heading, the number of conditions tabulated merely represented the different forms in which practitioners notified cases of this description.

Dr. E. W. GOODALL, replying to Prof. McIlroy, deprecated the suggestion that in fever hospitals cases of puerperal fever were put in charge of inexperienced officers; these cases were desperately bad, as a rule, when admitted, and had very little chance. Invariably it was the most experienced officer available who had charge of them, and expert opinion could be obtained when required. Since very few cases were admitted, however, it might be an advantage if they were concentrated in one hospital.

Dr. J. ROBERTSON said that in his area (Birmingham) there was a ward sanctioned by the Ministry of Health for cases of puerperal fever, so there was room for any case that might occur. The results were not so good as might have been anticipated, since cases were sent up so late that it was impossible for the best specialist to help them. The whole question of obstetrics needed reviewing; it must be remembered that the chief duty was to prevent and not to treat these cases.

Dr. REMINGTON HOBBS urged his conviction that every case of puerperal fever was a surgical case and susceptible to surgical treatment.

The PRESIDENT considered that the discussion had been very useful. It now remained for the subcommittee to meet and to consider the reply to be sent to the Ministry of Health. It could be anticipated that there would be a demand for a comprehensive inquiry.

MEDICAL SOCIETY OF LONDON.

ENCEPHALITIS LETHARGICA.

AT a meeting of this Society held on Nov. 10th, Dr. E. M. CALLENDER, the President, being in the chair, a discussion was held on Encephalitis Lethargica.

Dr. E. FARQUHAR BUZZARD, in introducing the subject, reminded Fellows that six years ago, when he read a paper before the society on the disease, he referred to it as a stray visitor, whose stay might be expected to be of but short duration. But, on the contrary, it had not only outstayed its welcome, but its incidence had so increased as to constitute a menace to the health of the community. It was humiliating to professional pride to have to confess that there was not yet available the knowledge necessary to enable its progress to be checked, though admittedly its microbic origin had been fairly determined and its morbid anatomy and clinical features studied; but we have yet to learn its path of approach and its methods of dissemination. In this contribution Dr. Buzzard specially directed attention to one or two questions which were difficult to answer and which had important bearings. There were no real characteristic symptoms or physical signs by which the disease could be recognised, and as any function of the brain might be disturbed, there might be a whole series of clinical manifestations.

Importance of History of Onset.—The diagnosis depended on a careful consideration of the history of onset and the course of events, as well as on the exclusion of other morbid processes capable of producing like disturbances. No serum or chemical test was available, and no cytological picture was pathognomonic.

Importance of the Ambulatory Form.—The acute disease did not present nearly so serious a problem as the ambulatory form, the importance of which was becoming more and more evident. He knew many examples in which serious disturbances of the nervous system had followed what seemed to be a minor illness—probably diagnosed first as influenza, or even catarrh—and he narrated two or three examples in which there seemed to have been present at the early stages nothing to enable a serious condition to be recognised. The most common early indication that a case might turn out to be ambulatory encephalitis was a transient diplopia, lasting a few days, possibly only a few hours. Another of these indications was the occurrence of acute pain in a limb or in the face or neck, regarded at the time as neuralgia. The period of diplopia might be synchronous with a definite change in temperament, in the direction of a morose restlessness. There was often a real difficulty in differentiating this disease from disseminated sclerosis.

Prognosis.

There were a number of points in connexion with late developments which had a direct bearing on prognosis. In the first week or two of the disease he would be a bold man who forecasted the behaviour of a case. The possibilities for the patient could be summarised in the following way: (1) Recovery might occur within a reasonable time and no ill-effects remain; (2) death might occur in the acute stage; (3) continuance of life might be at the cost of permanent disablement; (4) recovery might apparently ensue, but might be followed in weeks or months by relapse; (5) there might be more or less complete recovery, and then, after a variable interval, a slowly progressive sequel might develop.

In the attempt to forecast the issue certain points might be helpful. For example, the more acute the onset and the more fulminant the symptoms, especially if associated with a high temperature, the more was a speedy death likely. But, conversely, it could not be said that milder initial stages rendered less liable progressive disablement, or even an eventual fatality. Still, many cases which were of mild onset made a good recovery.

One of the interesting questions was as to whether late developments could be regarded as true relapses of a process which for a time had ceased to be active, or were cases of fresh infection. He had seen cases in which both seemed to be true, and he did not feel able to give any guidance on this aspect of the subject. Some of these cases he narrated. He also discussed the prospects of a patient who, after all other symptoms of the disease had disappeared, still had myoclonic contractions. A medical man who had an acute attack in 1916 still had myoclonic contractions in his trunk muscles in 1920, though three years later they had practically ceased, only reappearing when he was very fatigued. The speaker did not hesitate to recommend him as a first-class "life," as he was convinced that the continuance of these contractions alone did not justify a serious outlook.

Fresh Light on Cerebral Localisation.

Dr. Buzzard thought the sequelæ of the disease merited a close study because of the light they might shed on the localisation of cerebral function. One patient who had the post-encephalitic Parkinsonian syndrome said that in addition to the drowsiness and slowness of action she had fits of uncontrollable yawning, and attacks of what she described as shortness of breath, which inquiry showed were periods when she had to breathe consciously, and the same concentration was required even to sip her tea; this became a noisy process. She also had difficulty in producing ocular convergence, and while she was not relaxing her musculature by an effort, rigidity, or muscle tension, supervened. In other words, the higher centres were often invoked to carry out movements which in health were automatic. The Parkinsonian syndrome was usually associated by workers with lesions of the basal ganglia, and the progressive sequelæ of the disease supported this idea. He had seen a number of cases of progressive hemiplegia, starting in one limb and later becoming double. It was mainly a motor disability, but slight sensory disturbances of cortical origin accompanied it. These patients had no arterial degeneration. In one or two, on his advice, an exploratory operation on the brain had been done, but no gross changes were found, and he thought these symptoms might be a hitherto unrecognised legacy of the disease under discussion.

Dr. Buzzard, in conclusion, said that the practical lesson to be derived from the experience of the last few years was that no minor ailment which gave even slight evidence of organic nervous lesions should be treated with anything but the greatest consideration. Inactivity was essential when dealing with inflammation in any part of the body, and the organ which contained the most highly specialised and delicate tissues in the body was no exception to this rule.

Discussion.

Prof. A. J. HALL (Sheffield) dealt with the subject as he had encountered it in Sheffield, and illustrated his remarks by means of a number of slides giving statistics and tracings of temperature and of attacks of polypnœa. In the city in question there were notified this year to October 320 cases, and the surrounding neighbourhood brought the number to about 500. He gave a history of the epidemic in the Sheffield area and stated that the mortality had been surprisingly low, about 10 per cent., in contrast to the 20 per cent. in the country generally. The outbreak was notable for the many variations in type. Six cases in one week were sent into surgical wards as abdominal emergencies; some cases of the disease were diagnosed as pleurisy, others as renal calculus. Hiccough was a very common and distressing accompaniment. The occurrence of abdominal myoclonus led to many mistakes in diagnosis. When polypnœa occurred it constituted a valuable early sign of the disease, and the tracings of respiration during these attacks evidenced the severity of the seizures. He had practically never seen this polypnœa in girls, all the cases were in boys. The attack of this was preceded by a state of anxiety, with deep flushing of the skin of the whole body. A peculiar feature in many of the victims of the disease was a sort of writing mania; a number of the patients spent a great deal of time in scribbling all sorts of things on scraps of paper.

Prof. J. **McINTOSH** referred to the investigation which was undertaken on behalf of the Local Government Board when the disease made its first appearance in England in 1918, and a number of people regarded it as a form of cerebral poliomyelitis, others as an aberrant influenza, but without bringing evidence in support of their contentions. In 1919 a monkey was successfully inoculated with the disease, developing tremor and definite paralysis, and the basal ganglia showed lesions identical with those of human encephalitis lethargica. Many rabbits had since been successfully inoculated with the virus from acute cases, and this animal was much more susceptible to it than the monkey. It was shown that the filtrates from emulsions from infected brains could pass the Berkefeld filter, and the virus could be passed in series from one animal to another. He had himself done four positive inoculations from fatal human cases. He dealt at some length with the criticisms which had recently been brought forward against these experimental findings. He pointed out the difference from spontaneous encephalitis of rabbits, which was always a chronic disease with wasting. The exact relationship of the virus of encephalitis lethargica to that of febrile herpes was much more difficult to evaluate, but he could not bring himself to the view of Levaditi and Harvier, that they were identical. These points could only be settled by a continuance of experimental work.

Dr. A. **SALUSBURY MACNALTY** spoke on the epidemiological side of the question and gave the following table of cases which had been notified in England and Wales from 1919 to the present time:—

Year.	Cases.	Death.
1919	541	264
1920	890	471
1921	1470	724
1922	454	337
1923	1025	530
1924 (to Oct. 25th)	4605	Not yet compiled.

This year's outbreak started in January last and was first localised in Lancashire, originally in outlying districts, then in denser populated districts. There had been a number of instances of several members of a household being attacked, and similar occurrences had been reported in France. From a study of the epidemiology of the disease, the conclusion that encephalitis lethargica was an infective disease liable to manifestation in epidemic form seemed to be justified, and was gaining universal acceptance.

The **PRESIDENT** recalled some cases in his own practice which were diagnosed and treated in various ways and which, on further knowledge, seemed to have been instances of this disease. One in particular was regarded as tuberculous meningitis. One patient still had diplopia and was probably an ambulatory case of encephalitis.

Dr. A. W. M. **ELLIS** spoke of a number of specimens of urine he had examined from cases; in these there was an absence of phosphoric acid, and the ammonia was far in excess of the normal. These urines also contained a great deal of albumose, pointing to considerable liver involvement.

Dr. C. P. **SYMONDS** spoke of cases of encephalitis lethargica who had the Argyll Robertson pupil. With regard to the restlessness and insomnia of these cases, he questioned the wisdom of seeking, by the aid of hypnotics, to reconstruct the normal rhythm. If new symptoms were not manifested, his experience had been that the patient tended to re-establish the normal rhythm naturally.

Sir **WILLIAM WILLCOX** said that nearly every case of the disease he had seen had a rapid pulse, but one definite case, in a boy, had a pulse of only 50. He asked as to the value in diagnosis of the paralysis of accommodation when it occurred; also whether Dr. Buzzard found that the prognosis in the condition was worse for patients over 55 than in younger persons.

Reply.

Dr. **BUZZARD**, in the course of his reply, spoke appreciatively of the work which Prof. Hall had done in connexion with this disease. He was much interested in his remarks about hiccough. In one school where there was a mild epidemic of encephalitis, the school medical officer told him that four of the masters had such violent and continuous hiccough that they were unable to control their forms, and had to be absent from school until the symptom passed off. He agreed with Prof. Hall that many of the cases seen were of a desperate nature, when there was a rapid termination in death of the Parkinsonian syndrome. Still, in the first case in which he, the speaker, saw the Parkinsonian syndrome, in April, 1918, the patient, a man aged 50, was bedridden with what looked like paralysis agitans, but this year he found the man was back at his work on a railway. He had seen cases with both a quick pulse and a slow one, and he was not prepared with an explanation of the difference. He thought those with a slow pulse had reached a considerable degree of lethargy; indeed, some were almost stuporose, as if they had increased intracranial pressure, and probably the pulse partook of the general sluggishness. He agreed that the prognosis in older patients—about 60 to 65—was usually worse than in young adult life. In one household every member and the servants were stricken with the disease, most of them mild cases, and it was regarded as some gastro-intestinal infection, with neuritis. The mistress had the fulminant type and was dead in ten days. The intestinal tract might be one method of approach of the virus to the central nervous system. In answer to Dr. Symonds, he did not think one could make much difference to the rhythm of patients troubled with insomnia and restlessness. The hiccough, he had found, was best relieved by chloretone. With the careful study of the symptoms and histories, and comparisons of results, there would develop a greater confidence in diagnosing this disease than many felt at present; but it was a condition which well merited every form of investigation which could be brought to bear upon it.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of this Institution on Nov. 6th a discussion took place on the

Treatment of Pleural Empyema.

Mr. **THELWALL THOMAS** alluded to a discussion held in 1893, when he brought upon himself serious criticisms for daring to advocate excision of a portion of rib to facilitate free drainage. He discussed empyema with and without pneumonia, and emphasised the necessity in severe cases of empyema, complicated with pneumonia, of repeated aspiration to relieve serious symptoms of toxæmia and asphyxia before resorting to incision—a mode of treatment confirmed during the severe war epidemic. He strongly advised local anæsthesia both as a preliminary to exploratory puncture and as the only method of anæsthesia for the subsequent operation. The site of election was below the angle of the scapula, a portion of the eighth or ninth rib being excised and the pleural opening being made sufficiently large to admit two fingers and facilitate removal of masses of fibrin. Since the routine performance of this operation chronic empyema had been much less frequent. He mentioned the value of X ray examination in doubtful cases. Tubes for drainage should be half an inch in diameter at least; he deprecated the use of safety-pins as "land anchors" for the tube, suggesting instead a strong hair-pin pushed through the tube and the limbs bent at right angles. Chronic cases necessitating Dakinisation or plastic operations had become rare owing to efficient drainage. Antiseptic dressing should be used. Exercises to extend the lungs and good feeding were essential. The operation of incision, drainage, and immediate closure he considered severe and uncertain as to result.

Mr. **JOHN T. MORRISON** said that out of the large number of interesting questions raised he would confine himself to one, the prevention of the development of chronic empyema. This might be looked at from two points of view, the early expansion of the lung and the prevention of infection. The first should be encouraged from the start. The ideal method, primary closure of the wound, being still too risky for general use, valvular drainage should be employed. Personally, he favoured connecting up a short wide drain with a tube hanging over the bed, its end under the surface of fluid in a bottle on the floor. The tissues must, of course, fit snugly round the drain. This made an air-tight and water-tight joint so that there was no necessity to touch the dressing for five to eight days. The prevention of mixed infection was impossible if the wound remained open. If possible the drainage-tube should be removed at the first dressing; it might be as early as the third day to the fifth if the lung had expanded and adhered to the parietes round the drain as it often did. The early removal of the drainage-tube appeared to him the safe and reasonable compromise between immediate suture and prolonged drainage of the chest.

Sir JAMES BARR said that he had incidentally dealt with the treatment of empyema in his Bradshaw lecture, and in a lecture on the physics of the chest; he should now content himself chiefly with the physics of the problem. When the evacuation of the pus was necessary by an operation, the object should be to prevent, as far as possible, the collapse of the lung. The incision should be made posteriorily as low as thought desirable in a line with the lower angle of the scapula. The patient should lean towards the affected side and an assistant should compress that side of the chest. A short tube should be kept in for a few days to prevent the wound closing, and the wound should be covered with a piece of sterilised oiled-silk, so as to act as a valve to prevent air entering, but allow the pus to escape. The patient should frequently blow into a Woolf's bottle or piece of rubber tubing to keep the lung expanded. When there was a rise of temperature, the surgeon frequently concluded that it was due to lack of free drainage and retention of pus, and proceeded to enlarge his wound and work further mischief, whereas the rise of temperature was practically always due to secondary infection of the wound. When the wound was dry and glazed, constant irrigation should be at once adopted either with Dakin's tubes or by immersion in a warm saline bath. The water in the bath should contain 0·9 per cent. of sodium chloride. The attention to minute details was necessary for success.

Mr. K. W. MONSARRAT considered that the appropriate treatment of empyema was dictated by the type of infection in each case. In streptococcal cases an early thoracotomy was often inadvisable. In tuberculous cases the results of open operation were usually disappointing; sinuses in these cases tended to persist indefinitely. In pneumococcal cases he held that there was no rival to adequate drainage, every possible measure being taken to dispense with tube drainage at the earliest moment. He did not use any special measures; he considered that the essentials of technique were: an opening wide enough for the evacuation of coagulum masses, and a tube large in diameter and short in length. Examination of the discharge was the best guide in choosing the time for dispensing with the tube.

Dr. HUBERT ARMSTRONG recalled the danger of acute œdema of the lung and syncope in exploratory puncture, but denied that it could be averted by previous local anæsthesia. There was no such danger in the exploration of an empyema, but only when the needle entered the lung in chronic pneumonia. He considered it advisable to aspirate in cases where the fluid was only turbid, and to postpone open operation till it had become frankly purulent. The extremely low operation was not without danger of injury to the diaphragm and consequent infection of the peritoneum.

Dr. J. C. MATTHEWS referred to those cases (usually following pneumonia) where aspiration produced a thin, turbid fluid with a high bacterial content. It was well recognised that these cases, if submitted to immediate operation, became very ill; he suggested that this was due, not so much to the infective nature of the fluid, but to the fact that, in the absence of adhesions between the lung and chest wall, operation induced a complete pneumothorax with its consequent collapse of the lung and displacement of the mediastinal contents to the opposite side.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AN ordinary meeting of this Society was held on Nov. 6th, Dr. E. F. MAYNARD, the President, occupying the chair. Dr. W. BARRINGTON PROWSE read a paper entitled

Deep X Ray Therapy.

He said in the past there had been much uncertainty and want of method in the application of X rays for therapeutic purposes, the result being disappointments and doubts as to the value of the treatment in many directions. It was not claimed that X rays were a complete cure for malignant disease, but they offered a prospect of cure in some cases. The main purpose of his paper was the subject of X rays in relation to malignant diseases, and in particular he wished to speak of the more scientific and accurate applications of X rays for therapeutic purposes, especially as employed at Erlangen. The work of Profs. L. Seitz and H. Wintz at that University had raised deep therapy to the rank of a scientific and accurate procedure, leading to greatly improved results. Even by the older methods relief of pain, healing of ulcerated surfaces, disappearance of a growth, at any rate for a time, had been effected, but measurements and dosage were variable. Now the dose could be measured fairly accurately both on the surface of the body and at given depths, and the reactions of normal and diseased tissues to different quantities of rays, which had been established, gave us some basis for the dosage. Apparatus also had been devised enabling the use of the necessary heavy and accurate dosage of rays of sufficient penetrating power and homogeneity. X rays had a profoundly destructive action on all tissues when administered in sufficient quantity. Smaller doses appeared to stimulate, though this had been disputed. While the action of X rays on all living tissues was similar it varied in degree, according to the tissue. Young and rapidly growing cells, such as those of embryonic type, were more susceptible than older cells of fixed type. The cells of new growth, being largely of this embryonic type, were all (though in varying degree) more susceptible than most of the body cells of fixed type. Seitz and Wintz at Erlangen had measured quantities of X rays which produced biological changes in tissues normal or diseased, while Kronig and Friedrich, of Freiburg, working on a different system had arrived at similar results, giving the same relative sensitiveness of individual tissues. These give a basis for estimating the necessary dosage in deep X ray therapy. Dr. Prowse defined the latter as the administration of an accurately measured quantity of rays, for curative purposes, to the whole of a diseased area within the body, such quantity being the minimum which would cause the destruction of the vitality of the diseased tissue to which it was applied. In the accurate measurement lay the difference between this and the older methods. Depth was variable—the tissue treated might lie in the centre of the body or at the surface—and he did not like the word "intensive," ignoring measurement and conveying the impression of extreme intensity, though this was no greater than in the older methods. The treatment was intensive in the sense that it aimed at giving the full necessary dosage within a short time instead of in divided doses over a long period. There was a division of opinion on the relative merits of the above methods, but he thought the immediate application of the total dose to be the method of choice when dealing with an *existing* malignant growth, except where there were positive contra-indications, though there were, of course, cases in which it was not advisable. Ten years ago it had been noticed that malignant growths exposed to X rays gradually suffered diminution of their sensitiveness to the rays, and Sidney Russ had recently further established by experiments on rat sarcoma that this acquired resistance was handed down through many generations of cells, descended from those originally irradiated. This was a strong argument in favour of the immediate application of the total dose. The single dose was more accurate, smaller in quantity in the end, and effected a saving in time, which was important in dealing with cancer. Those who advocated divided dosage laid stress on the fact that recovery from these doses was more rapid in the normal tissues than in the tumour and on the absence of X ray sickness; they pointed out the great general disturbance of the body frequently seen after the single dose, the changes in the blood, and the possible injury in the healthy organs. These latter dangers might also be present in the divided dose. Dr. Knox had suggested that the *control* of cancer and other diseases by radiations in divided doses should be aimed at, but was this possible? Many cases of cancer had been checked in their progress by X ray treatment carried on at intervals, but in the end had succumbed, and after a time X rays had appeared to lose their power. Dr. Prowse did not suggest that the single lethal dose was applicable to every case. Each case must be considered on its merits, and the arguments against the single massive dose had more weight in cases other than those of *existing* malignant disease. The prime object of the Erlangen treatment of cancer cases was the destruction of the vitality of the cancer cells. There followed breaking down of the cancers, elimination of the products of disintegration, and building up of healthy tissue. Wintz attributed the first of these entirely to the "destructive momentum"—namely, the X rays; elimination depended on the general biological condition of the whole body.

In dealing with a case sent for X ray treatment, the first thing was verification of the diagnosis, but there was objection to test-excision or curetting if avoidable. Then the general condition of the patient must be considered. The size of the tumour was important: first, on account of the possible difficulty of producing a lethal effect upon all parts of it; and secondly, on account of the general reaction which might result from the destruction of a large growth in situ and the question whether the body was equal to the strain of elimination and recuperation. Further inquiries should cover metastases, blood, excretory functions, previous illnesses, skin—especially as regards former irradiations or applications capable of producing irritation or secondary radiation. Possible adhesions fixing coils of intestine within the area of irradiation were very important, also inflammatory states of the intestine or bladder. Close collaboration was necessary between medical attendant, radiologist, and surgeon. Preparation of the patient for irradiation should include rest, effective emptying of the bowels, regulation of diet. Some abdominal and pelvic cases were irradiated fasting. Sometimes an injection of heroin or morphia and scopolamine was necessary.

With regard to general considerations of irradiation, the object was to apply to the whole of the diseased area a dose of X rays suitable for the destruction of the vitality of the malignant cells, without serious injury to the skin and normal tissues. This was generally more easily done in the case of centrally situated tumours than in the case of those on the surface. When the tumour was on the surface it became in some ways more difficult to get sufficient dosage without injury to the skin. The total time required for the irradiation might be several hours, and it was often necessary to take the dose in instalments (bearing in mind that the dose was to be completed within about two days) and all possible provision must be made for the patient's comfort and for the protection of those parts not at the moment within the field of irradiation. After-treatment was as important as irradiation, since after the destruction of the vitality of the malignant growth, reparation of injured healthy tissue, elimination of products of disintegration, the sustaining of the body against malignant disease, and the restoration of healthy tissue had all to be undertaken. These depended mainly on the condition of the body, but rest, fresh air, attention to excretion, and suitable diet were all of assistance. Wherever local irradiation has caused local lowering of vitality, the tissue or organ affected must have rest as far as possible, and must be protected from all sources of irritation.

Among general injuries, X ray sickness might appear in greater or less intensity and was generally lessened by regulation of the bowels before irradiation and administration of a hypnotic. Injury to the blood depended directly upon the quantity of rays absorbed and generally righted itself in about six weeks, but should be helped by medicinal treatment and fresh air and sunlight, &c. For elimination of the products of disintegration and restoration of healthy tissue we had to depend upon the resistance of the body, only removing as far as possible all sources of irritation, and upon general care and treatment. X ray therapy for carcinoma might seem a formidable proceeding, but carcinoma was a formidable disease and seemed to justify risks.

Discussion.

The President said he had read Erlangen reports and was sorry to find the results claimed had not been substantiated.

Dr. Henry T. Cubbon asked if enlarged thyroid had been treated by intensive methods.

Dr. C. Guy Whorlow disliked the term deep X ray therapy, but approved of the definition given by Dr. Prowse. There was difficulty in getting together the physicist, instrument-maker, and radiologist. He considered that small doses of X rays stimulated cells, and one must avoid stimulating new growths. He did not agree with an invariable carcinoma dose. Cells varied in radio-susceptibility and cells varied during the period of their life-cycles, the most susceptible stage being during reproduction. A large number of young subjects could be given single intensive doses, but in old people with toxic symptoms the dose should be spread over one week, giving the body time to deal with toxins thrown into system and avoid sickness. Dr. Whorlow also discussed the action of minute doses spread over a long period and large area with a view to producing immunity to disease. In non-operative cases X rays should be used in all cases for the relief of pain and for improving the general condition of the growth. Radiation in carcinoma mammæ should be given tangentially to prevent any lung complication.

Dr. Thomas S. Allen asked the result of operable cases treated by X rays.

Mr. Fitzmaurice Kelly considered that the procedure should be preliminary radiation of the whole area before operation and small doses after.

Exhibition of Cases.

At the commencement of the meeting Dr. W. B. Prowse showed two cases treated by X rays:—

Case 1: *Sarcoma of the Back.*—The patient was a man aged 60. A prominent sore spot was noticed in January, 1924, by patient. In April a growth the size of an egg was noticed to the left of the spine, also nodules in surrounding skin, growing rapidly and inoperable. Treatment was given on April 28th. Within a week there was appreciable reduction of the tumour and smaller nodules, and at the end of three weeks the growths had practically gone. Second treatment was given on June 21st. Present condition: No sign of growth: supple skin everywhere. General health good and no sign of metastases.

Case 2: *Carcinoma of the Breast.*—The patient was a woman, aged 74, with extensive and inoperable carcinoma of four years' standing. She had a large mass in the outer part of the left breast involving a considerable area of skin and on the point of breaking through in two places. The patient's general condition was good. First treatment on April 14th this year produced some reduction in the mass. Second treatment given June 6th. At end of July nothing was left of the tumour but a puckered scar with a little thickening underneath. A third treatment was given on July 23rd and a fourth on Oct. 3rd. Present condition: A puckered scar, and a little fibrous thickening under it. No sign of metastases and general health good.

The dosage was arranged so as to get, if possible, a lethal effect from a single application. There were no harmful results.

Dr. A. W. **WILLIAMS** also showed two cases: (1) A severe case of lupus vulgaris of nose and upper lip cured by carbon arc-light baths; (2) lupus vulgaris of nose, cheek, lip, buccal mucosa, and larynx, treated by sunlight baths and eosin and sunlight to skin esions.

Dr. H. M. **GALT** showed microscopical slides of: *Sp. pallida* in liver, human lung (doubly injected), normal ovary from a child of 2 months, and the solid part of a dermoid cyst of the ovary.

LUNACY LAW AND ADMINISTRATION.

FURTHER SITTINGS OF THE ROYAL COMMISSION.

(*Continued from p. 913.*)

THE sittings of the Royal Commission on Lunacy and Mental Disorder were resumed on Tuesday, Nov. 4th, under the presidency of Mr. H. P. Macmillan, K.C.

EVIDENCE OF MEDICAL SUPERINTENDENTS OF POOR-LAW INFIRMARIES.

Dr. A. L. Bayly, medical superintendent of Lambeth nfirmary, said the accommodation for mental cases n this institution consisted of four wards with 0 beds for women and one ward with 11 beds for nen; the latter would probably be increased in the ear future. Every degree of mental disability was nanifested by the patients there. A magistrate ttended on two days each week for the purpose of ertification. During the year which ended last March 15 persons were brought before this magistrate, nd of that number 453 were admitted on the request f either the relieving officer or the police (under ection 20 of the Act, which provided for three days' etention). Other cases were transferred to the mental epartment from the general wards of his own or ome other institution. Of the 453 cases on three ays' detention, 193 were subsequently transferred o mental hospitals, in 111 others the orders were llowed to lapse, and the remaining 149 were eventually ither discharged or transferred to the general wards. large number of these cases, he said, were not echnically lunatics, but it was advantageous to the atients that they should be for some time under ontrol. The cases which were transferred to mental ospitals were those amenable to treatment, for which here was no provision in the Poor-law infirmary. ases retained in the infirmary were chronic, most f them senile. His frequent difficulty was, not in eciding whether or not a particular person was of nsound mind, but whether he should be transferred a mental hospital. A good deal depended, in finding n answer to this question, on the kind of home onditions the patient had. Much of this difficulty ould be removed if there were a scheme whereby eople of obvious unsoundness of mind could be laced on trial for a period without certification, pecially as many of the cases of mental unsoundness hich found their way into the Poor-law infirmary ere clearly of temporary nature. In quite an ppreciable number of cases domestic trouble seemed have been the determining factor; in fact, he had ad cases in which husband and wife alternately nt each other to the receiving establishment. he mental unbalancing in these cases usually disppeared shortly after the calming influence of the firmary operated. Cases which observation showed ere not certifiable were mentioned to the magistrate on the latter's visit, and received their immediate discharge unless physical ailment was present, and then, in that case, the patient was sent to a general ward. In certain cases it was not clear that discharge should be granted, and it seemed desirable that further observation should be carried out. These the speaker certified but suspended the operation of the certificate. If during that period recovery took place no one was aware that certification had been effected.

In reply to questions as to his position should an aggrieved patient take action on an allegation that he had been certified, Dr. Bayly said he had received assurances of protection from a Commissioner of the Board of Control, but fear of legal troubles in connexion with this work was now very acute among private medical practitioners, and it caused them to evince a disinclination to participate in the administration of lunacy. Every effort was made by the relieving officer, and, if necessary, by the police, to trace relatives of patients, not only to settle the question of chargeability, but to assist in compiling a reliable history of the patient and to give their wishes in regard to him. Only a small percentage of patients suffering mental accompaniments of fevers were eventually certified, and where insanity was clearly a part of physical disease he always did his utmost to retain the patient in his own institution in preference to sending him to a mental institution. He objected to a hard-and-fast segregation of mental cases. There were advantages in treating mental cases in a general institution, not only because it avoided the "stigma" of insanity, but because it meant the patients then had the advantage of supervision and treatment by a general medical staff. It would suffice if attached to the ordinary staff there were a special mental consultant.

The Chairman emphasised the fact that mental disease disturbed the responsibility of the citizen, and said that while the stay of a patient in a general hospital was necessarily short, mental disease ran a long course, and in many cases was permanent. There was the further point that it was undesirable for mental patients to associate with rational persons.

To this Dr. Bayly said a large number of mental cases were amenable to treatment in a general ward, while for others he agreed a separate ward was needed. For incurable cases it was better to have either a separate block or an entirely distinct institution. If power were to be given to Poor-law institutions to retain apparently curable patients for a longer period than they could at present be kept, it would be necessary that the staff should include experts in the treatment of mental disorder.

The next witness was Dr. J. Dudgeon Giles, who is medical superintendent of Salford Union Infirmary. He said that of 900 patients in his infirmary there were, on the average, about 150 mental cases, and about 80 per cent. of the latter were brought by either the relieving officer or the police, and were kept there on a three days' detention order. A very small number were discharged within that period, and the majority of the total were placed on a 14-day order for purposes of observation. At the end of the 14 days a certain number were found to be certifiable, and accordingly were transferred to a mental hospital. Chronic cases were placed under a permanent detention order. He expressed his strong view that there should be a period of observation and provisional treatment, with some sort of control, before certification was resorted to; but with that should go the power of saying to the relatives that during such period the patient must not be removed from the institution. Such a provision in regard to observation would, he considered, result in more volunteering for treatment and at an earlier stage of their mental malady than was the experience now. He agreed that the present system, as intelligently and sympathetically interpreted by medical officers, had not worked badly, but he thought some simplification was eminently desirable.

EVIDENCE OF OTHER POOR-LAW OFFICERS.

The Commission resumed its sittings on Wednesday, Nov. 5th, when the first witnesses were Mr. Howard Senior, President of the National Association of Masters and Matrons of Poor-law Institutions, and Mr. Usher, its hon. secretary, whose evidence reflected the expressed opinions of 1000 institution officers. They both stated that they considered there should be a longer period of observation in regard to persons regarded as of unsound mind who had been admitted to workhouses, where at present the period of detention was 14 days. Quite 50 per cent. of the people who came in under temporary orders were cured, so that certification became unnecessary in that number. In small institutions the officer of the infirmary had to do the best he could under the circumstances, and if the police brought in an acute case—without an order—the absence of properly trained people rendered the position a very difficult one. They did not consider that any country house was suitable for the reception of cases under Sections 20 and 21; their suggestion was that one institution in each area should be set apart for the reception of cases of the kind and staffed accordingly. Chronic cases, such as those of senile dementia, were living with the rest of the workhouse inmates in a number of country places, and apparently without detriment. Sometimes such patients, who had shown no harmful tendencies, were allowed out for short periods, the master of the workhouse taking the risk. Asked if their views would be met by having a special department of the mental hospital where patients could be observed and afterwards duly relegated they replied in the negative, mainly because of the stigma still held to follow such association. In reply to a question by Lord Eustace Percy, Mr. Usher said he did not see why arrangements should not be made with the Poor-law authorities to set apart one of their institutions in each district for the reception of the kind of cases under discussion. His Association advocated the lengthening of the period of preliminary detention, and eight days should be allowed for arriving at a determination of the nature of a case, and so that these days should not be wasted from the point of view of treatment, there should be at these places facilities for treatment as well as observation.

Mr. Senior said his Association considered that the three-day order should be followed by a magistrate's 14-day order, and that in every case the magistrate should visit the institution and see the patient. He personally believed the period should be made 28 days, and at the end of that time an order for discharge or for detention in an institution should follow. It was very seldom, in his experience, that a justice suspended the execution of an order for not longer than 14 days, as allowed. Answering Sir Humphry Rolleston, he said the patient should be dischargeable at any period within the suggested 28 days, but he would not object to two 14-day periods instead of one of 28 days. If recovery occurred during the currency period, presentation of the medical certificate to that effect to the justice who made the order should suffice to secure discharge. He further contended that the periodical revision of cases should be undertaken by a rota of justices of the peace; the point was to ensure the periodical bringing of cases before some authority. In large institutions the medical officer's quarterly report would be a sufficient protection to the patient; his remark applied to small institutions which guardians did not systematically visit.

Mr. Senior also raised the question of children of very poor mental condition being kept in the same wards as adult chronic mental cases, remarking that the influence was a bad one, as these children proved very apt imitators. Attempts to get such children to other institutions generally failed. He emphasised the importance of the relatives of the adult patient being warned of the case being about to be dealt with by the justices, and inviting a relative to be present to assist in the matter. In the case of mental disorder accompanying physical disease, such as pneumonia or severe neurasthenia, the patient should be placed under a limited order and certification avoided, as disclosure of the latter might militate against subsequent success in life.

EVIDENCE OF JUSTICES.

Mr. L. Whitemore, J.P., a judicial authority in the County of London, next gave evidence, based upon a large experience in dealing with petitions for reception orders in London in the case of private patients. He criticised the present duplication of authorities, which he regarded as unnecessary. He was in favour of the provision of a period of observation before a final judgment was pronounced upon a case. Also some care should be exercised in seeing that when a patient was discharged the destination to which it was intended to send him should be suitable; and he would like the after-care aspect of the question to be more stressed.

The last witness was Colonel P. Broome Giles, F.R.C.S., J.P., who gave his experiences as a justice under the Lunacy Act in Herefordshire, Bucks, and the borough of Folkestone. He said he would make it a sine qua non that the magistrate should personally visit the patient at the latter's home; it had been his own invariable practice. He also asked whether a friend of the patient, other than the petitioner, was present at the interview, and did all he could to bring this about. Cases of alcoholism, puerperal mania, and some of neurasthenia should have a lengthened period of observation before certification was entertained. During this time the patient could be kept in a large house with a resident medical man and nurses to keep watch on him or her. In his experience patients were given every chance of making complaints, and these were always listened to and investigated. In one or two cases ill-treatment had been established, and the attendants at fault were discharged. He had known only two cases in which the magistrate's opinion on a case was against that of the medical man, and in those cases he did not think the magistrate was the right type of man for the position. In his interviews with patients before certification it had not occurred to him to reveal to them his function in case they should wish to put forward a special plea to preserve their liberty; that was because he wanted them to feel no restraint. He had never known a patient discharged without the authority of the medical officer. Facts stated on the certificate to have been communicated by others he had always been careful to personally verify, sometimes asking people concerned whether particular statements were theirs. He would not make such checking by the magistrate obligatory; discretion should be allowed. In the case of complaints by patients while under detention, he talked to them in a locked room alone; he did not fear a homicidal outbreak, as he was once an amateur middle-weight boxer.

The Commission adjourned to a date to be determined.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 1ST, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely: Small-pox, 48; scarlet fever, 2238; diphtheria, 1170; enteric fever, 93; pneumonia, 863; puerperal fever, 39; cerebro-spinal fever, 3; acute poliomyelitis, 28; acute polio-encephalitis, 1; encephalitis lethargica, 40; continued fever, 2; dysentery, 4; ophthalmia neonatorum, 102. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 7 from scarlet fever, 33 from diphtheria, 29 from measles (a sharp rise), 46 from influenza. In London itself the deaths from diphtheria numbered 9 and from infantile diarrhœa 28.

Reviews and Notices of Books.

THE MAYO CLINIC.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Vol. XV. 1923 (published June, 1924). Edited by Mrs. MELLUISH. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 1377. £3 3*s.*

"THIS volume marks a radical departure from the policy previously pursued in the selection of material for reproduction in the Collected Papers of the Mayo Clinic." Put briefly, whereas in the past an effort was made to reprint all publications—an effort which has been unsuccessful since 1917—now, though every paper is at least mentioned, not all are set out in full. The volume is kept within reasonable limits by giving either brief abstracts or by merely citing the reference to the original publication. The articles chosen for this treatment are those of technical or limited interest to the few rather than of general interest to the surgeon or physician.

The arrangement of the volume is similar to that of its predecessors. Subjects are dealt with by systems beginning with the alimentary tract. As usual, this section is of especial interest and contains much that is of great value. The articles from Russell Carman on the technique of gastric and intestinal rontgenology, and the findings in diseases of the whole alimentary tract represent the latest advances in this difficult subject. In this respect the publishers must share in our congratulations on the high technical achievement in the reproductions of X ray films. The urogenital section contains some excellent articles, of which the most instructive concerns diverticula of the bladder from the pens of Starr Judd and Albert J. Scholl. They hold the view that these sacs are of developmental origin, but only become the cause of symptoms later in life, the age of the prostatic enlargement accounting for nearly 70 per cent. of the total. Of 133 cases seen at the Clinic between 1894 and 1923 only two occurred in women. They favour removal by the extravesical route in most cases, and report an 8·1 per cent. mortality. In only five cases was the ureter involved, and in 20 there were associated calculi. Of these, in nine cases the calculi were in the diverticulum, eight in the bladder, and three in both the bladder and the diverticulum. In their series ten of the cases showed a carcinomatous change. The sections on ductless glands, circulatory organs, skin, head, trunk and extremities, and the nervous system all contain numerous papers of importance, pointing to the extensive work being carried out at the Clinic. One article perhaps may be singled out as being of surpassing interest. It deals with the problem of the administration of insulin by overworked general practitioners, and it contains helpful advice on this difficult subject. The section of technique contains three articles all dealing with local and regional anæsthesias in various regions. The first is by Starr Judd and William Meeker on sacral block anæsthesia in the surgery of the prostate and the bladder, and outlines the method of blocking the sacral nerves at their exit from the sacrum. The second—by William Meeker and Herman Hundling—describes and comments on the various approaches to the cervical plexus. For several reasons they advise the lateral oblique route, by which the needle is inserted just below the mastoid process on the mastoid-cervical tubercle line and directed obliquely downwards, injections being made where the nerves lie in relation to the cervical vertebræ. They conclude that the neck is one of the most favourable regions for local anæsthesia, and they advise use of this method in thyroidectomy, thyrotomy for removal of tumours, laryngectomy, œsophageal diverticula, for removal of glands, branchial cysts, tracheotomy, and ligation of blood-vessels. The third article by W. Meeker and Barnet Bonar describes the use of regional anæsthesia for gynæcological and obstetric operations.

The volume is prepared with the same care and thoroughness which has always characterised Mrs. Melluish's work, and the general get-up and the illustrations are of high standard. The appearance of these volumes from the Mayo Clinics is one of the landmarks of periodical medical literature, and we believe them to afford busy medical men one of the surest means of keeping abreast of the times.

THE NATURE OF DISEASE.

By J. E. R. MCDONAGH, F.R.C.S. London: William Heinemann. 1924. Part I., pp. 327. With 59 plates. £3 3*s.*

IT is often supposed that imagination has no place in the progress of natural knowledge. People sometimes think that Darwin learned all the facts of biology and then found that they inevitably added up to the theories which he put forward in the Origin of Species. In fact, of course, the theory came into his head first of all, and he then spent a good many years reading the literature and making experiments in search of facts to illustrate and demonstrate it. The question of the proper share of the imagination in scientific work has often been discussed with no more profitable result than the conclusion that some people have the faculty of using their imagination in such a way that the highest type of progress ensues, and that others are led by their imagination into what is just nonsense. The history of science has plenty of examples where subsequent knowledge has entirely disproved a contemporary judgment that an author belonged to the second class. In view of which it is obviously wise to suspend one's opinion and leave the point open for each reader to decide for himself. But Mr. McDonagh's book is a large one, remarkably tedious to read, and in parts impossible to understand; and it is hardly fair to encourage others to embark on it without passing the opinion that they will probably come to the conclusion that Mr. McDonagh uses his imagination in an illegitimate way.

In more detail, the book is mostly about syphilis, and a good deal of it seems to have been published before. The author deals with the life-cycle of the spirochæte, the theory of staining, the inflammatory response in epithelium, endothelium, and leucocytes, chemotherapy, blood coagulation, the Wassermann test and shock, and the whole centres round his conception of condensers and conductors and their action on the protein particles of the blood. Further parts are promised as the author's investigations proceed.

OPERATIVE SURGERY.

By W. S. BICKHAM, M.D., F.A.C.S., former Surgeon in Charge of General Surgery, Manhattan Hospital, New York: former Instructor in Operative Surgery, College of Physicians and Surgeons (Columbia University). London and Philadelphia: W. B. Saunders Company. In six volumes. Vol. IV. 1924. Pp. 842. £15 the set.

THE fourth volume of this work carries out the general plan and intentions of the author as evinced in the preceding parts already reviewed in our columns. It deals with operations upon the heart, pericardium, and thoracic œsophagus, abdominal surgery in general, except the colo-recto-anal regions, and abdominal gynæcology. There is the same encyclopædic description of operative procedures which have been devised and used. The surgeon in consulting the book will always have to select his methods for himself in the light of his own knowledge or the experience of others, but he will very seldom fail to find a clear account of any operation he may wish to perform. Curiously enough, no account is given of the inguinal method of operating upon femoral hernia, nor, for that matter, of Roux's method In diaphragmatic hernia the combined abdomin and thoracic approach has been highly spoken by some surgeons. A description of it would ha been helpful. Such ill-advised procedures as gast pexy and gastroplication are described as though they were commonly carried out, whilst the same remark may be made of the use of Murphy's button for gastro-jejunostomy and other anastomoses. The section on surgery of the biliary tract is particularly good. Where such an enormous field is covered it is easy to find examples of omissions here and there. They are, however, commendably few, and the author is to be congratulated on maintaining the high standard set by the previous volumes.

DEAF-MUTES.

Les Sourds-Muets. Étude médicale, pédagogique et sociale. By DR. G. DE PARREL, former Chef de Clinique, and Mme. GEORGES LAMARQUE, Professor, at the National Deaf and Dumb Institution of Paris. Paris: Les Presses Universitaires de France. 1925. Pp. 445. Fr.35.

THIS excellent work deals in a very complete manner with the whole problem of the deaf and dumb child. The first part has the more direct medical interest, and begins with the classification of deaf-mutism; the main division into hereditary and acquired, not into congenital and acquired, is insisted on. Ætiology is fully discussed, and the preponderant rôle of syphilis is emphasised, while a distinction is drawn between congenital syphilis and the "syphilitic heredity." A very full description is given of the complete medical examination of the deaf and dumb child, in which a careful examination of the eyes, and correction of visual defects, are rightly insisted on. There is an interesting chapter on the care of the child before school age, which should be of great value both to the parents and doctor; exercises at home, preparatory to formal instruction in lip-reading, are included in this chapter, and form an important part of the treatment too often neglected. The second part of the book deals with the educational aspects of the subject; the deaf and dumb schools of France are fully described, together with the details of the methods of instruction which are employed; and, finally, the civil and social position of the deaf-mute, and his prospects and attainments are discussed.

The book is written with knowledge, sympathy, and enthusiasm, and deserves to be read by the many who are, or should be, interested in the subject.

SURGICAL DISEASES OF THE DOG AND CAT.

With Chapters on Anæsthetics and Obstetrics. Third edition. By FREDERICK T. G. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E. London: Baillière, Tindall and Cox. 1924. Pp. xii.+435. 15*s.*

THE third edition of this book has been eagerly looked for, for the second edition has been out of print for some years. The application of aseptic and antiseptic principles to the surgery of the dog and cat has enabled great advances to be made in the art of treating injuries or diseases by operation. The internal diseases of the abdominal and pelvic cavities of the dog and cat were more or less closed ground as regards diagnosis and treatment until laparotomy was initiated. Major Hobday was one of the first in this country to carry out laparotomy on a large scale on these animals, and his book is therefore of especial interest to veterinary surgeons.

The successful anæsthesia of a canine or feline patient is as important as the proper carrying out of the operation. The instructions and advice here given on local and general anæsthetics may be accepted as authoritative since they are based on thousands of records extending over a period of some 30 years. The various regions of the body and the diseases or mishaps that may necessitate surgical procedures are dealt with in order, the eye, ear, mouth, throat, neck, stomach and intestines, rectum and anus being discussed in separate chapters.

The account of operations on the urinary organs and male and female generative organs is specially lucid and a valuable chapter is added on Difficult Parturition. The application of X rays to the diagnosis of canine and feline ailments is well discussed. Illustrations from actual photographs of diseased and pathological conditions are included and greatly enhance the value of the book, which may be read with advantage by all who are interested in comparative surgery.

COMPARATIVE ANATOMY.

Vorlesungen über Vergleichende Anatomie—Ernährungsorgane. By OTTO BÜTSCHLI, Professor of Zoology in Heidelberg. Berlin: Julius Springer. 1924. Pp. 380. $6.45.

THIS book consists of an account of the digestive organs of all classes of animals. Two-thirds of the volume are devoted to the invertebrata, the remaining third to the vertebrata. The author has succeeded in compressing an immense amount of information into the comparatively small space of 380 pages. The book contains many illustrations, mostly line drawings, which adequately fulfil their purpose. Fig. 188, which shows the palate and cheek papillæ of the deer, is a new and welcome departure from the usual text-book illustration. As this work appeals to the teacher and research-worker rather than to the student, it is greatly to be regretted that there is no bibliography.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXVII., No. 4. Pp. 349–469. October, 1924.—Histological Observations in an Unsuspected Case of Epidemic Encephalitis in a young child, by C. Da Fano and Helen Ingleby (London). A child developed symptoms like those of juvenile amaurotic idiocy after an attack of whooping-cough and slowly grew worse, dying of broncho-pneumonia a year after the onset, at the age of 2½. The brain showed the lesions of chronic epidemic encephalitis with widespread degeneration of nerve cells and intense proliferation of endothelium and neuroglia. "Minute bodies" were present. The lesions are fully illustrated.—Pathological Changes in the Musculature of the Alveolar Passages in the Lungs, by J. Harkavay (Freiburg). An interesting study of changes in the musculature of the finer ramifications of the air-passages. Hypertrophy occurs whenever there is chronic obstruction to expiration (e.g., chronic cardiac disease, emphysema), but not in inflammatory lesions, and indicates an active rather than a passive rôle for these fine strands of muscle, particularly in association with the blood-vessels, to which inadequate attention has been paid hitherto.—Urea Retention in Experimental Oxalate Nephritis, by J. S. Dunn, the late A. Haworth, and Nora A. Jones (Manchester). A series of urinary and blood analyses in experimental nephritis in rabbits which are particularly interesting in comparison with the present vogue of similar measurements in man. Oxalate nephritis seriously impedes the excretion of urea, which accumulates in the blood, but not that of water.—The Complement-Fixation Test in Tuberculosis, by F. Eleanor Williams and Lucy M. Bryce (Melbourne). As others have found, the test is useful but not infallible.—The Modification of the Bone Lesions in Rickets due to Mobility of the Part, by J. P. McGowan (Aberdeen). Imperfect calcification leads to mechanical weakening at the epiphyseal junction, and the mobility and even dislocations resulting from this are the cause of many of the gross anatomical changes and the fibrosis of the marrow which occur in rickets and scurvy.—Rats and Foot-and-Mouth Disease, by J. M. Beattie and D. Peden (Liverpool) (see p. 1028).—Bone Marrow Embolism of the Lungs in a Rabbit, by J. S. Dunn (Manchester). Figures and describes pieces of bone marrow found in the lungs of a rabbit after fracture of vertebræ.—The Bacteriology of Fowl Typhoid and Allied Infections, by J. W. Edington (Sheffield).

ery careful cultural agglutination and complement-leviation tests show that the two organisms, *B. allinarum* and *B. pullorum*, which cause fowl typhoid nd bacillary white diarrhœa, are indistinguishable; oth are quite different from *B. avisepticus*, which auses fowl cholera. Three local epidemics were due o *B. pullcrum*.—Fermentative Reactions of the iphtheria Bacillus, by C. C. Okell and E. M. Baxter. he fermentative reactions of real diphtheria bacilli re uniform and constant.—The Experimental Study f Gastrotoxic Serum, by C. Bolton (London). olemical.—Differentiation of Streptococci on Chocoate Blood-agar, by H. W. Crowe (Harrogate). etails of the reactions of a number of strains on the uthor's medium are given, with some correlation of he scheme so obtained with other classifications.—natomical and Parasitological Details of Two Cases f Streptothrix Infection, by H. A. Haig (Cardiff). ne due to *Nocardia israeli*, the other, in which the eart was involved, to *Nocardia bovis*.—Diphtheria of owls, by W. M. Crofton (Dublin). On the evidence f cultures and the success of prophylactic immunisaion the author thinks that fowl diphtheria is due o an influenzoid bacillus.—Obituary notices of . Emrys-Roberts, A. C. O'Sullivan, G. A. Wyon, . Beaton, B. H. Wedd, and A. Haworth, with ortraits of E. Emrys-Roberts, A. C. O'Sullivan, and . G. Shattock, and an index are included.

BRITISH JOURNAL OF SURGERY.—The October umber contains Sir D'Arcy Power's fourteenth Eponym—the Wheelhouse Operation.—W. A. Cochrane escribes a method of treating fractures of the leg nd ankle by plaster of Paris, and the overcoming f residual deformities by wooden wedges introduced nto cuts in the plaster cast.—G. Keynes records hree cases of squamous-celled carcinoma of the enal pelvis.—R. J. M. Love brings forward some emarks on prognosis in acute appendicitis.—S. Pringle describes a new method for the aseptic esection of the intestine.—R. F. Young records ive cases of polycystic kidney and briefly reviews the ausation, symptoms, and treatment of this condition. —T. H. Burlend and D. J. Harries publish their case f a white myeloma at the lower end of a radius n a girl of 9 years. Their resection of the bone was ollowed by a beef bone graft, which was shown adiographically to be slowly absorbed. They find hemselves in agreement with the recent Edinburgh teaching that myelomata are tumours of osteoclasts nd not marrow tumours.—H. A. Bruce reports plexiform neuro-fibroma of the solar plexus.—Prof. C. A. Pannett records his methods and his results in a series of cases of duodenectomy for uodenal ulcer.—Sir G. Lenthal Cheatle adds a ninth case of Paget's disease of the nipple to his previously published series in this journal, Volume XI. —A long and most interesting paper on the transplantation of the fibrous tissues in repair of anatomical defects, by W. E. Gallie and A. B. Lemesurier. They show how fibrous transplants may be utilised in injuries to tendons and ligaments, certain fractures, e.g., the patella, certain deformities, and hernia.—Submaxillary salivary calculi are discussed by Hamilton Bailey.—F. Gordon Bell reports three cases of metastatic tumours in bone from the thyroid gland.—A. Maclennan suggests a new method of arthrodesis in the tarsal joints.—H. C. Edwards reviews the chief features of calculous formation in cystinuria.—Retro-peritoneal catheterisation of the ureters is described by Andrew Fullerton for those cases in which changes in the bladder render the usual manœuvre impossible.—M. J. Stewart and T. B. Mouat contributed a valuable article on fibroma of the abdominal wall.—J. Gaymer Jones discusses chronic intussusception and reports 15 cases.—The following rare cases are reported: (1) M. W. Bulman, Volvulus of the Cæcum; (2) A. H. Southam, Sarcoma of the Metatarsus of an Infant; (3) E. W. Johnson, Epithelioma of the Penis; and (4) C. P. G. Wakeley, Fibro-sarcoma of the Orbit with Multiple Secondary Deposits.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XXIII.—THE MEDICAL LOCUM TENENS.

BY JAMES NEAL, M.R.C.S. ENG.,
GENERAL SECRETARY OF THE MEDICAL DEFENCE UNION.

ANY medical practitioner who acts temporarily as a substitute for another medical practitioner is technically a locum tenens.

A Difficult Position to Fill.

The position of a locum tenens is often very difficult. The practice into which he suddenly enters may be conducted on lines with which he is entirely unfamiliar. The principal may have had but little opportunity of making the locum acquainted with his methods, or of explaining in detail the various cases for which the locum must now assume responsibility. Not only are the patients complete strangers, but the district and local features may be entirely unknown, and as a rule the locum has not even the advantage of knowing the principal. It is not surprising in such circumstances that complaints are sometimes heard of the unsatisfactory character of a locum tenens. Difficulties must necessarily occur when an unsuitable locum is placed in charge of a practice, and the principal should therefore take great care in the selection of a substitute.

It may happen that a medical man in practice is asked to see a patient during the absence of a colleague through illness or other cause. In such circumstances the locum tenens must carefully avoid doing or saying anything calculated to prejudice his colleague's interests, and must on no account consent to remain in attendance on the patient when his colleague is once more available. He may reasonably claim to be remunerated for his services, but that should be arranged with his colleague and not with the patient. Frequently no claim is made for payment, more particularly when the service can be reciprocated.

Mutual Coöperative Schemes.

In many areas it is now quite usual for the local practitioners to arrange systematically to deputise for each other whilst on holiday, and so avoid the necessity of importing complete strangers as substitutes for the absentees. The arrangement works well in many cases, and is highly creditable to those concerned. A very elaborate scheme has been arranged at Leicester in connexion with the Public Medical Service. The benefits of the scheme are limited to those who are prepared to do some of the work of absent members. Each practitioner who avails himself of the scheme is required to contribute £1 1s. a week for the first and second week of his absence, £6 6s. for the third and fourth week, and £8 8s. for the fifth and any further week. The general expenses of the scheme are a first charge on the fund so created, and the balance is distributed in proportion to the number of units to the credit of each practitioner sharing in the work. A somewhat similar scheme has been arranged by the London Panel Committee.

In those districts where successful holiday schemes are in operation the local practitioners are necessarily on good terms with each other, and the practices are carried on with due regard to the best ethical traditions of the profession. It is satisfactory to know that such arrangements are becoming more general every year. In many cases, however, it is not possible for local practitioners to undertake all necessary deputising for each other, more especially at busy times, and for various reasons a whole-time locum tenens must sometimes be obtained from elsewhere.

Agencies and Fees.

Every medical agent has a list of medical practitioners willing to undertake locum tenency work, and can usually supply one suitable for the particular kind of work to be done. Great care must always be taken to verify the registration of anyone employed as a locum tenens, even when recommended by a medical agency. During the last few years many instances have occurred of unqualified persons obtaining such posts, and in one particularly flagrant case investigated by the Medical Defence Union the same individual had been sent to no less than three practices by an agency before it was discovered that he possessed no qualifications whatever. The best medical agencies make it their business to inquire carefully into the suitability of those they recommend, and unless a principal is so fortunate as to have personal knowledge of a practitioner who is available to take charge during his absence, he will be well advised to rely upon the experience of a good agent rather than to employ a complete stranger on the strength of his own assurances. Moreover, when a locum tenens has been employed who is satisfactory, it is very advisable that the principal should endeavour to obtain his services each year.

The fees now paid to a locum tenens vary usually from seven to ten guineas a week, the employer providing full board and lodging and all travelling expenses. It would obviate many difficulties if the principal would explain his domestic arrangements beforehand, the amount of alcohol he allows, the limits he imposes on the use of his motor-car, and other small points, which, if undefined, may be a cause of friction. The engagement commences from the time the locum leaves his home or the agent's office, and includes the time occupied by his return journey. Temporary engagements are usually on a weekly basis, sometimes by the day only, and it is rarely that monthly contracts are made.

Restrictive Covenant.

Although owing to the temporary character of the engagement formal written contracts are frequently dispensed with, it is desirable to have a properly drafted agreement in every case, and the agreement should include a restrictive covenant against practising within a stated distance for a reasonable period of time. This proves of special value if the principal should die and the sale of the practice become necessary. But in all cases where this precaution is omitted there is a danger of trouble arising. Complaints are frequently made that a practitioner has established himself in a district where he has previously been employed as a locum tenens. I am not prepared to say that a man who has acted as a locum tenens in a particular place, possibly for only a week, is for ever debarred from setting up in practice in that locality. But it must be admitted that a man who sets up in practice in a neighbourhood where he had formerly been employed as a locum tenens for any length of time, even if he invariably refused to attend any of the patients of his former employer, would expose himself to suspicions which would necessarily injure his professional reputation.

The principal is entitled to receive all fees earned by the locum, including fees for attending court, or inquests, or for performing post-mortem examinations, though if any of such work has to be done after the engagement has terminated the locum is entitled to retain the fees or to be suitably recompensed for the work.

Questions of Obligation.

When a locum tenens is obtained from a medical agent a fee is usually charged to the principal, payable as soon as the appointment is made. A similar fee is also charged if the principal at any time re-engages the locum, unless it should be done through another agent. If a locum tenens subsequently buys the practice, or a share in the practice, the principal may become liable for commission to the agent on the purchase money, though in some cases the agent stipulates that the commission will only be payable if the purchase of the practice or a share is made within 18 months of the introduction as locum tenens. The medical agent also charges the locum tenens a commission on the salary received, and if the locum tenens should be re-engaged as locum tenens or assistant, except through another agent, a similar commission is payable. If the locum tenens be admitted into partnership without payment of a premium, such commission, if any, as is payable to the agent who originally introduced the locum tenens is usually based on the gross value of the share taken over by the locum tenens.

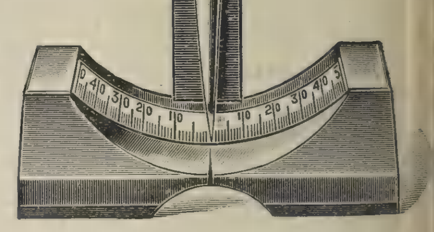
It is important for the principal to remember that the cost of employing a locum tenens—namely, the fees paid to the locum tenens and the cost of housing and feeding him—should be charged as expenses of the practice when making the returns for income-tax.

In law the principal is responsible for the consequences of any act of his locum tenens performed in the course of his employment and duty, this being the ordinary responsibility of the principal for the acts of his agent. But the locum tenens also is responsible in law for his own acts, and the aggrieved party has the right to select whether he will bring the action against the principal or against the locum tenens, or against both. It is most desirable, therefore, that the locum tenens should be a member of one of the medical defence societies, and this might reasonably be made a condition of his employment.

New Inventions.

AN APPARATUS FOR ESTIMATING THE DEGREE OF ROTATION IN THE SPINAL COLUMN.

UP to the present, although many forms of apparatus have been made for the purpose of estimating the degree of lateral curvature in the dorsal and lumbar regions of the spine, no satisfactory one has been produced for measuring the amount of malrotation. To meet this want I have designed a simple apparatus as depicted in the illustration, named the "Spinal Torsionometer." It measures about 4 in. by 2¾ in., and can therefore easily be carried in the pocket. It consists of an aluminium block with a scale to record degrees, above which is suspended a fine needle which immediately registers the angle at which the block is lying. The subject to be examined is placed face downwards on a couch; a line is drawn with a dermograph through the tips of the spinous processes in the region desired together with transverse lines to denote the middle of each such process. The torsionometer is placed transversely on the points of intersection of the line on successive vertebræ and the amount of rotation (if any) is read off. If, instead, the torsionometer be placed longitudinally over each point of intersection, the amount of antero-posterior curve can also be estimated.



The apparatus can be obtained from Messrs. Arnold and Sons (John Bell and Croyden), Ltd., 50–52, Wigmore-street, London, W. 1.

EDGAR F. CYRIAX, M.D., Ch.B. Edin.

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THE LANCET.

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PATHOLOGICAL UNITS.

IT was said by one of the greatest of all clinicians hat "To know the natural causes of disease is to know more than half medicine." Pathology is the study of the natural causes of disease and upon its efficient maintenance depends the status of the medical art. Recent donations from the Rockefeller Foundation for pathological departments, and the handsome offer just made known of a gift to the Westminster Hospital of a pathological unit as a memorial to the late Dr. JOHN BURFORD CARLILL, suggest an inquiry into the present position of pathology and the lines upon which it is to develop. Pathology in this country is approaching a critical period in its career as an associate of medicine. In the history of each of the subjects ancillary to medicine and surgery—the two dominant arts in the medical curriculum—there has been the same trend of events, as the subject has grown from being an interesting divagation from the main lines of professional life, pursued by a select few, until it has reached the status and importance of being handed over for its study, teaching, and further development to a specialist. Anatomy was the first to evolve along these lines, physiology followed within living memory, pathology and bacteriology are now separating from the parent subjects. When a pendulum swings it swings back. Extreme positions are taken up before ultimate and ried stability is reached. To many of us the anatomy of our student days was a dry business of systematic ectures upon bones and joints, with little humanising nfluence beyond the contact with comrades in the dissecting room. To-day the dull facts are illumined by the broader conceptions of comparative study and embryological knowledge; the anatomy of the living body is being widely taught by the aid of radiography and the lessons to be derived from the changes induced by disease. Physiology, too, has had its renascence. The frog has been relegated to its proper sphere in he vertebrate world; human and mammalian physioogy are stealing back.

The position of pathology is less definite. It appears o be that of one standing at parting ways, uncertain which to take. Only recently did the pathologist become a specialist; little more than ten years ago W. S. GREENFIELD, whilst occupying a chair of pathology, was holding classes in clinical medicine in he Edinburgh Royal Infirmary. The generation which ollowed, dominated largely by the influence of this doyen of British pathology, developed mainly as eachers of morbid anatomy and morbid histology, nd of them it may be said that they have raised hese branches of pathology to a singular level of xcellence. This exclusive specialisation has, howver, brought in its train certain penalties. A gradual process of drift has led to a separation rom clinical interests, and too close an attachment to morbid anatomy has caused a loss of dequate consideration for the pressing problems of he clinician. The latter cannot evade his share of esponsibility, for too often he has come to regard the pathologist as a useful though modest addendum to he hospital staff, able to give enlightenment upon he cause of death which he has failed to discover but whose possible usefulness at an earlier stage of the patient's downward course had not entered his mind. The clinician and the "pure pathologist," obsessed by morbid anatomy, must between them accept the paternity of that ungainly hybrid the "clinical pathologist," who is often condemned, during the hours of his hospital service, to carry out uninspiring diagnostic tests that could be done quite well by a technical assistant under supervision, and to make up vaccines in his spare time. The artificial separation of two intimately connected branches of medicine has deprived each of the parties concerned of the natural benefits which should arise from coöperation and has diminished their individual professional usefulness. The pathologist on the one hand is tending to submerge the earlier clinical instincts which led him into the study of medicine, and to turn his natural bent for investigation from the clamant but elusive problems of disease towards the solution by animal experiments of problems of his own conception; while the clinician on the other has to rely upon diagnostic tests performed by someone in a distant laboratory. Where this lack of conjunction is most complete it leads to the production of a quite unwanted race of physicians, skilled enough in the arts of AUENBRUGGER and LAENNEC, but inadequately versed in modern scientific methods and wholly lacking in that mental outlook which daily familiarity with research and its sorrows engenders.

Pathology, as we have said, is at a parting of the ways, and just as many young men hesitate in the choice between a life in clinical medicine and a life in the pursuit of natural knowledge, and often fall into ineffective attempts to compromise the two, so pathology must make up its mind more clearly as to what its objects are to be. It seems as if the future will see diverging lines of development and that we shall have a pathology that is really and sincerely medical, and a pathology of a more generalised type which is frankly biological in its outlook. The association of medical pathology with medicine is at present not close enough. So far, in spite of its drawbacks, it has never failed to attract some of the best students of our medical schools, but the infusion of vitalising principle seems to be essential in the near future if it is to continue to do so. A subject that is not well remunerated must offer other attractions if it is to compete successfully and maintain its existence. What is overshadowing pathology at the present time is its divorce from clinical medicine The subjects are admittedly too large for any one individual to engage fully in both pathological and clinical work, but it would be of unquestionable advantage to everyone—pathologist, clinician, and patient alike—if the mechanism for closer coöperation existed in every pathological unit. The laboratory should be a training ground for the young clinician; in serving an apprenticeship there he would gain experience of great value to himself, and in doing so would relieve the pathological staff of a part of the heavy burden of routine work which, with the time occupied in teaching, leaves scanty opportunity for serious research. There is, we think, little doubt that in institutions in which a period of service in the laboratory is looked upon as a normal preparation for a post on the medical staff medicine is found in its most flourishing condition. A pathological unit should be a meeting-place in which every aspect of a medical problem can be viewed and reviewed in the light of specialised knowledge of the processes of disease. The tentacles of the pathological institute should penetrate the wards and other departments of the hospital, and free access should be provided for the laboratory worker to bring his special knowledge to bear upon clinical problems. The whole matter is vital and generally agreed upon in principle, but the stirring to action is slow in coming. Much depends upon the creation of what is called in modern phrase a suitable atmosphere. Every member of the clinical staff should feel that it is not only his right but his duty to keep in personal touch with what goes on in the laboratory, and on their side the pathological staff must be allowed to slough the impeding tradition that their main purpose in life is to cut morbid specimens in the dead house. It must be an everyday and natural thing for them to enter at least some portion of the medical wards or out-patient departments where they may see disease in its active state. In a word, the pathology of the future must be compact, more of morbid physiology and less of morbid anatomy. The director of the pathological unit should have a guiding hand upon all the laboratories of the hospital, where there are more than one of these, and whilst remaining a whole-time pathologist might well have access to a certain number of beds, with facilities for investigating special types of case as the need arises. The recommendation made by the Carlill trustees that a few beds should be placed at the disposal of the director of the proposed pathological unit is a step in the right direction.

Improvements of this sort will do much for medicine, but they may put further off than before the prosecution of the more generalised study of pathology which Prof. A. E. Boycott urges elsewhere. For this some provision and encouragement are needed too; the contributions which it will make to medicine will be perhaps sporadic and scattered, but they will be none the less considerable than the daily help which medical pathology will give. Medicine has in the past found some of its best advances in fields without any obvious clinical relations, and schools of pathology in the science faculties of our universities will further medicine as well as biology and will do much to clarify the present unsatisfactory compromise of conflicting ideals.

MEDICAL EXAMINATION FOR LIFE ASSURANCE.

The medical problems of life assurance have formed the subject of careful study both in this country and in America. The transactions of the Assurance Medical Society, which was founded in London in 1893 as the Life Assurance Medical Officers' Association, constitute a striking record of the work done in this country. They are in effect a veritable encyclopædia of reference in regard to these problems, and to this encyclopædia a notable addition has just been made in the suggestive presidential address of Dr. G. Grahamsley Howitt. The history of life assurance and of the association of the medical profession with it is well worthy of study. The earliest appointments as medical advisers to insurance companies Dr. Howitt has been able to trace were made in 1823. The evolution of the medical report from its earliest simple type to its present form, which is essentially the same for most companies, has taken place largely during the last half century. Having commented on the origin and development of insurance medicine, Dr. Howitt proceeded to discuss some of the problems introduced by the employment of laboratory methods in the study of disease. This part of his address is published in abstract on p. 1047 of this issue of The Lancet. It will repay study by those concerned in the medical examination of candidates for life assurance. Dr. Howitt points out that the advances made by instrumental and laboratory methods in clinical medicine sometimes seem to raise fresh problems for the insurance medical examiner. He instances the electrocardiograph and the polygraph as examples of instrumental methods. These instruments have helped to demonstrate that some forms of cardiac irregularity are not of serious import, and have thus rendered certain sufferers eligible for life assurance with or without an extra who would formerly have been declined or heavily rated. The difficulty the insurance medical examiner is placed in is that he cannot as a rule obtain the information these methods are capable of affording, owing either to the expense or the time involved in their application.

As an example of the problems introduced by laboratory methods Dr. Howitt instanced glycosuria. Study of the blood-sugar curves before and after the administration of glucose have demonstrated that there is a form of glycosuria called renal glycosuria or diabetes innocens in which the utilisation of sugar in the body is not interfered with, but in which the renal "leak-point" for sugar is lowered. Such cases are comparable to the condition of functional, postural, or adolescent albuminuria, and, like it, they would seem to be risks assurable with a moderate extra or with some small form of rating, either by limitation of the period for which the assurance is granted or by limiting the payments to a given age. Unfortunately, our knowledge of renal glycosuria is of such recent date that no sufficient data are available to forecast the future of such cases. It is one of the insurance problems which is still sub judice. The difficulty of the examiner is, however, not only in the rating of such cases, but in their differentiation from more serious forms of glycosuria and from true diabetes. A blood-sugar estimation and sugar-tolerance test is an expensive and time-consuming process for which the companies will not at present pay. It is only when a proposer is willing himself to submit to and pay for such an examination that it is possible to get this counsel of perfection carried out. Failing this, the examiner has to be content with several examinations of the urine under different diets—an unsatisfactory and unconvincing procedure.

Advances occur in insurance medicine as in all other branches of medical science, though necessarily more slowly. In this connexion it is of interest to note the recent action, to which our Berlin Correspondent has called our attention, of the life insurance companies in Germany in regard to medical examination. During the inflation period the companies tried to reduce their expenses and dispensed with medical examination. When the currency was becoming stabilised, they were disinclined to resume the use of medical examination for fear of diminishing their business, owing to the possible objection of proposers to be examined. They therefore, not infrequently, gave policies on the statements of their agents. The result has been some expensive law suits by the companies and a distrust of the companies on the part of some intending insurers. The tendency, therefore, is for the companies to return to the old method, and to require medical examination once more. Insurance without medical examination has been tried in this country on a not inconsiderable scale by some companies, but very careful safeguards in the form of personal statements are required, and in cases of doubt medical examination is often insisted on. It is instructive to observe the results in the German experience. This would seem to indicate that careful medical examination, though not essential, is a valuable safeguard to the companies.

DR. LOMAX AND HIS CRITICS.

It will be remembered that Dr. Montagu Lomax was the author of a book, "The Experiences of an Asylum Doctor," which attracted considerable public attention, and resulted in the appointment of a Departmental Committee to inquire into the allegations therein made as to the mal-administration of the mental hospitals. This Committee, before which Dr. Lomax himself declined to give evidence, made its report, and Dr. Lomax almost immediately wrote a reply to it, but, for a reason which he does not state, delayed its publication for nearly two years; it now appears in the form of a pamphlet[1] of 48 pages, and in view of the fact that a Royal Commission is now deliberating on the administration of Lunacy Law (see p. 1019) is worth discussing in detail.

Dr. Lomax is an exceedingly able and convincing writer, more convincing, in fact, than the surprise which he affects at the interest excited by his book. But in this controversy he is employing a method which in the columns of a journal eventually calls for the editorial footnote that "this correspondence must now cease." The subject of his protest has been ventilated so thoroughly, and so much has been conceded, in practice where feasible and elsewhere in principle, by the authorities to whom he is opposed, that the outstanding points of difference consist, at least in part, of details as to facts, motives, and procedure which might well be composed in a single evening were Dr. Lomax to dine amicably with a member of the Board of Control. For example, no less than three pages in this reply are devoted to what can only be described as a quibble over the method of calculating recovery-rates, a quibble all the more irritating because the author himself confuses annual admissions with the total resident population of an asylum. He thereby evolves a *reductio ad absurdum* (including, by the way, an actual mistake in simple arithmetic) intended for certain statistics as to recovery-rates, which, however, recoils on the author himself. Again, in the observation in the Committee's report that "Dr. Lomax was the only medical officer who neglected to enter in the prescription book the quantity of croton oil he prescribed," he assumes the word "quantity" to refer to numbers of doses, although they had previously "laid stress on the fact that in my first six months of office I prescribed 253 doses." It can obviously refer only to the quantity of the individual dose, and the singularly puerile argument based on this misunderstanding serves no purpose but to call to mind the methods of a junior school debating society. Two questions of fact on which no outsider can form an opinion are the subject of similar treatment—the exact date at which the "exercise pen" at Prestwich was brought into use, and the existence or otherwise of a "quiet, melancholic patient" who is alleged to have been put "behind the table" with degraded dements. The usefulness of comparing the total quantities of sedative drugs used annually in different asylums is hotly denied, and the value of bromides in epilepsy questioned. The text is also adorned by frequent quotations from the *Asylum Workers' Magazine*, a periodical whose attitude to the work of the institutions staffed by its own subscribers seems hardly flattering. One of these (p. 35), which suggests the entire abolition of the Board of Control, is so foolish and discreditable that its reproduction by Dr. Lomax might be regarded as ill-advised even by his most ardent supporters. It is to be noted (p. 1) that Dr. Lomax characterises his own original charges against mental hospitals as "vague and unsubstantial."

The main issues, however, are these. The Committee found that certain of Dr. Lomax's criticisms were justified, and some were not. Those that were justified concerned such items as classified accommodation, diet, clothing, parole, exercise, and adequacy in numbers and training of the staff (at Prestwich). Everyone concerned with the asylum service knew that there was room for improvement in these matters at many mental hospitals. The Committee naturally reported that such improvements were desirable. As Dr. Lomax observes: "Of the 15 recommendations made by the Committee 13 were made by me in my book and in almost identical words." These improvements are, indeed, being generally, if slowly, carried out, as the financial stringency consequent on the war is relaxed; municipal finance is the key to the situation, and those local authorities who are able to find the money are getting the things done. It is outside the powers of committees, superintendents, and the Board of Control, against whom Dr. Lomax's attack is directed, to hasten these changes, except by "recommending"; if they are listened to, all is well; if they are not, they can do no more. But there were other charges in Dr. Lomax's book which the Committee characterised as "gross exaggerations" or "demonstrably untrue," charges of an exceedingly damaging nature as to the attitude and conduct of asylum staffs. These, unfortunately, he now repeats. "But perhaps one of the worst uses to which the locked cell is put is as a torture chamber, where the most horrible brutalities are often practised upon defenceless patients." No evidence is given in support of this allegation. "The idea that any patients, or even attendants, are allowed to *enjoy* the beautiful gardens and grounds by walking or sitting about in them may be dismissed as in most cases entirely illusory." This, and its context, mean that no effort is made to render pleasant the environment of the insane. "Suicides and escapes—those twin bugbears of the official mind—are in reality the expression of our callous and rigid administration, and the injustice of wholesale and indiscriminate restraint." This, and its context, imply that all suicidal tendencies are the product of ill-treatment. The average reader of such assertions as these must either disbelieve Dr. Lomax, or conclude not only that the medical officers and nursing staffs of our mental hospitals are utterly indifferent to the welfare of their patients, but that they deliberately ill-treat them, and withhold from them the means of promoting their recovery.

Now it is understood to be Dr. Lomax's object to improve the treatment of the insane. He must know well that this treatment can only be undertaken in the existing mental hospitals, and that in improving their conditions, and particularly in securing the coöperation of the patient in efforts at bringing about his recovery, public mistrust is one of the most serious obstacles with which they have to cope. The consequences of legitimate criticism on the public attitude must be accepted, but when a well-known writer with professional experience talks of "torture," "warders," and "prisons," he is making himself responsible for a type of public prejudice and hostility which will long hinder the progress for which he is ostensibly working. It is from this point of view, and not merely because they are grossly libellous on his own and the nursing professions, that the repetition of these disordered accusations is most regrettable. The fact is that the maintenance of an injured attitude on Dr. Lomax's part is entirely unjustified. The Committee's report was admitted on all hands to be an exceedingly fair and well-reasoned statement of the facts. His legitimate criticisms were freely accepted, and his wild allegations of abuses were investigated with a patience, and reported on with a moderation of language, which perhaps they hardly deserved. It would have been more graceful on his part, and very much more useful for the public welfare, if Dr. Lomax had made some acknowledgment of the work of the Committee, for whose long and gratuitous task he was solely responsible, and had coöperated in promoting the future welfare of the mental hospitals by ceasing his attempts to prejudice the public against their administrators. Instead he abuses the Committee, and flatly accuses it of prejudiced selection of witnesses and the suppression of evidence. Perhaps

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[1] A Reply to the "Report of the Committee on the Administration of Mental Hospitals," 1922. By Montagu Lomax, M.R.C.S. National Society for Lunacy Reform, 32, Avenue Chambers, London, W.C. 1. 1s.

Dr. Lomax has not heard that one of the principal witnesses who made allegations of ill-treatment at the inquiry has subsequently recovered completely, and has gratified the superintendent of the hospital in which he was confined by an entirely unexpected letter acknowledging that the ill-treatment of which he complained had never taken place.

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GENERAL MEDICAL COUNCIL ELECTION.

The Scottish and Irish Direct Representatives of the medical profession on the General Medical Council have been re-elected without opposition. Sir Norman Walker issued no election address; after 18 years of service on the Council he hardly needed to do so. The position of the Direct Representative is very different now from what it was in the early days, for the work of Executive and Penal Cases Committees is mainly done in camera; but Sir Norman Walker's service on the Examination Committee is there for all to read in the published reports, and it is owing in no small degree to his tactful pressure that clinical examinations in midwifery and gynæcology have been introduced by most licensing bodies. His hand will be also manifest in the interim report on anatomy and physiology to be presented at the forthcoming session of the Council. In many ways he has been a good friend to practitioners, and not in Scotland alone. Dr. Leonard Kidd has already served the Council for 19 years, and his presence there will be specially valued at a time when the old relations of Irish medical practitioners to the British Register and General Medical Council may be profoundly altered by hasty action.

The election of Direct Representatives for England and Wales is keenly contested as there are ten candidates for the four seats. Voting papers, posted on Nov. 12th, must be returned by Thursday, Nov. 20th. The four nominees of the British Medical Association—Dr. R. A. Bolam, Dr. H. B. Brackenbury, Dr. J. A. Macdonald, Sir Jenner Verrall—are all well known to practitioners in the country. Dr. Macdonald and Sir Jenner Verrall have already sat for a dozen years on the Council and have served on a number of its Committees. Dr. Bolam, who has shown executive ability of the highest order in the Association, has occupied a seat on the Council for six years, and Dr. Brackenbury's claims to the suffrage of his fellow-practitioners are too evident to require mention. They have all given practical evidence of tireless effort for the credit and welfare of the profession. The four nominees of the Medical Practitioners' Union—Dr. H. J. Cardale, Dr. H. F. Devis, Dr. E. A. Gregg, Dr. Gordon Ward—are men whose work has brought them closely in contact both with fellow-practitioners and with various State departments of medicine. Collectively, they stand for the view that in many directions medical education is unsuited for the requirements of the general practitioners, who form the bulk of the profession, and their plea is cogent that the weak points in the education of the future doctor can be best appreciated by those who are themselves engaged in general practice. The two independent candidates are Dr. John Brown, of Blackpool, and Dr. F. H. Westmacott, of Manchester. Dr. Brown would alter the National Insurance Act so as to restore the "ideal family doctor," and he would change the medical curriculum to make its keynote the prevention of disease. Dr. Westmacott stands as a consulting surgeon and teacher with wide experience of the requirements of medical education, as well as of the needs of the public. He possesses also an intimate knowledge of the education and practice of dentistry and of the requirements of the combatant medical services.

The choice set before practitioners is not easy, but it is an excellent thing that once in five years they should thus be brought to think carefully of the functions of the General Council of Medical Education and Registration and have to express their views as to what kind of representative they desire to send to sit on this Council.

Annotations.

"Ne quid nimis."

THE ORIGIN OF FOOT-AND-MOUTH DISEASE.

It is said that if you plant a row of empty bottles upside down in your garden they will presently be occupied by healthy little ferns, which shows that fern spores are universally present and will manifest their presence if anywhere suitable conditions are provided for their development. The epidemiology of foot-and-mouth disease suggests that the virus of that elusive disease is in much the same position as the fern spores and that it is local conditions which determine the outbreaks of the clinical malady. It is possible, however, that it is really carried about by some moving agent—perhaps by man and his belongings, perhaps by birds—and any attempt to explore the possibilities of this is welcome. Prof. J. M. Beattie and Dr. D. Peden, of Liverpool, bring forward evidence in the last number of the *Journal of Pathology and Bacteriology* (vol. xxvii., p. 415) implicating rats. They show in the first place that feeding or inoculating rats with lymphatic glands from cows slaughtered because they had been in contact with declared foot-and-mouth disease can give rise to an affection characterised by œdematous swelling of the feet and vesicles and ulcers on the feet and on the tongue, and that this can be transmitted from rat to rat in series. From their observations it seems fairly clear that rats can be infected with the disease. In a proportion of these rats they also observed areas in the lung—solid, yellow, rather translucent—which they describe as gelatinous œdema. Examining carefully the wild Liverpool rats which are regularly dissected in connexion with possible plague, they found this lung condition in about 2 per cent., and they show that the places where these animals were caught are suggestively related topographically to slaughter-houses and places which had certainly had contact with infected cows by means of the sewers. Inoculations from these sewer rats supposed to be suffering from foot-and-mouth disease did not succeed in infecting fresh animals, and it must be admitted that the case for the wild rats having foot-and-mouth disease at all is not strong. A lung condition, not obviously dissimilar from that described, is known to occur both in wild rats and in many laboratory rats after their first youth, and Prof. Beattie himself does not regard the association which he describes as beyond doubt. However that may be, the fact that rats are susceptible to foot-and-mouth disease (first published in The Lancet, 1924, i., 221) is important and suggestive, especially in respect of the persistence of infection in a locality. It is only under very exceptional circumstances that rats migrate or are carried over long distances, and their possible function in causing widely separated outbreaks in cattle is still more problematical.

THE EDUCATION OF MENTALLY DEFECTIVE CHILDREN.

The education of mentally defective children presents problems of considerable interest to the general public, to medical practitioners, and to the members of local education authorities. In urban areas special schools are provided for those defectives who are able to derive reasonable benefit from attendance thereat, but in rural areas the numbers in any village are too small to allow of the formation even of a special class. The only method then available is the establishment of a residential school; this, however, leads to difficulties in that many parents object to the children leaving home and that the expense per head is considerably greater than in the case of day school education. In towns where there are special day schools the difficulties are of another character. While it is generally recognised that all but those of the lowest mental grade can be improved, at least in habits, there are many who need entirely individual care, cannot coöperate in any of the forms of class work which are essential in a school, and disturb the progress of the other pupils by their erratic behaviour. The Education Acts have therefore, rightly, limited admission to special schools to those who are able to learn to control themselves and who are susceptible of class instruction; in other words, imbeciles are not eligible for admission. It has been realised that some provision of occupation for the children thus excluded would be desirable. The present position is, then, that in the rural districts there are children who need special education which is not available, while in both rural and urban areas there are those who could not be instructed in classes. The Board of Education recently, in Circular 1341 (The Lancet, Sept. 27th, p. 666), drew the attention of local education authorities to the importance of the problem; the Central Association for Mental Welfare now supplement this by a memorandum, pointing out how their local branches can help in the solution. They are prepared to help in the following ways:—

1. By friendly visits to the home by those capable of advising parents as to the methods of training or controlling the child and also by teaching simple handicrafts or manual occupations which will excite the interest of the defective child and prevent further deterioration from sheer inertia.
2. By inquiring into the possibilities of employment after the school age.
3. By providing occupation centres for young defectives who have perforce been excluded from ordinary or special schools or who after the elementary school age are unable to be employed in ordinary industries but are capable of learning some simple handicraft.

The training in these centres is of the simplest nature: Control in conduct and social relations, domestic work, simple manual work, singing, and dancing games. To a very large extent each child may occupy itself with such tasks as he feels inclined, thus allowing of progress along any line of interest. He is not so confined to his place as in school, though he gradually learns the advantages of order, and finds that without it he cannot join in games with others. Some 50 such centres, open five half-days a week, are already established and are doing most successful work. In some cases they have prepared the way for the admission of a child to a special school by accustoming him to coöperate harmoniously with others. The local mental welfare associations work under the direction of the responsible officers of local authorities, and by coöperation with local mental deficiency authorities ensure the absence of overlapping and continuity of care for the individual defective from childhood onwards. There can be no question of the great advantage such centres and home visits provide for the defectives and their parents, while reducing in early life the need for institutional care, which is not only costly, but is a source of sorrow and anxiety to the parents.

BLOOD PLATELETS IN FATIGUE.

Recently Dr. S. Caccuri[1] has published some interesting observations on the intimate connexion between the platelets and coagulation of the blood in the human subject after severe exertion. Eight individuals, almost all young and in good physical condition, were subjected to severe exertion by means of the ergostat for 40 minutes to an hour or even more according to individual resistance. Previous to the experiment a count of platelets was made and the time of blood coagulation noted; these observations were repeated immediately on conclusion of the experiment, and after 6, 24, and 48 hours. For the platelet count two methods were used, that of Giudiceandrea and of Aynaud; the technique for blood coagulation was that of Vierordt. It was found from these experiments that immediately after exertion there was a marked diminution in the number of platelets to the extent of one-third or even one-fourth. This plastrinopenia was not of long duration, and, in fact, in six hours was much reduced, and after 48 hours had returned to normal or given place to a definite increase (plastrinosis). At the same time there was delay in blood coagulation. The interpretation of these phenomena may be either a destruction of platelets or their unequal distribution. Plastrinopenia occurs in lymphocytic leukæmia, pernicious anæmia, and anaphylactic shock, and in these conditions abnormal forms of platelets are found, but after severe exertion only those in a complete state of development are met with, and this fact seems to indicate that instead of a destruction, a migration of platelets from the periphery to the deep organs occurs. The probable explanation is that fatigue liberates into the circulation harmful products, which influence in various degrees the different organs; and the blood resents this harmful action. As the toxins must be neutralised by antitoxins, it is especially the organism, not habituated to excessive exertion, which is incapable of a prompt and sudden reaction when taken unawares by their abnormal increase. When after 24 hours the organism is in repose and has been able to eliminate the refuse and the toxins are completely neutralised, and when the period of repair has begun, then the platelets return to the general circulation from the internal viscera together with those produced by the hæmopoietic tissues by a process of secondary reaction. The simultaneous change in the time of blood coagulation also shows the intimate connexion between the platelets and this physiological phenomenon.

AMŒBIC ABSCESS OF THE LIVER.

Amœbic abscess of the liver is a relatively uncommon condition in this country, and for that very reason is apt to escape suspicion as being the cause of chronic illness associated with fever. The diagnosis is sometimes quite clear because of the very pronounced enlargement of the liver, but sometimes obscure owing to the situation of the abscess high up in the right lobe of the liver under the diaphragm, where it is not easy to reach even with an exploring needle. The rare abscess in the Spigelian lobe cannot be revealed by puncture owing to its situation. A small abscess in the left lobe also may defy diagnosis for a long time. Since the disease in this country is rare, no single surgeon can have extensive experience of it unless he has lived abroad. He must, therefore, be guided in his treatment of such cases as fall under his care by the experience of those practitioners who constantly have to deal with dysentery and its complications. In another part of this issue Lieut.-Colonel E. Owen Thurston reports results of his treatment of 64 cases of liver abscess. All these occurred in Indians except one. There was no history of dysentery in one-third of the cases—a point to bear in mind in the differential diagnosis of enlargement of the liver. More than two-thirds of the cases—49—were treated by aspiration alone, and of these 40 recovered; four cases were aspirated and later drained when this proved ineffective, and nine were treated by incision and the cleaning out of the abscess cavity with gauze, followed by complete closure of the abdomen. All these cases recovered. There are three methods of treating liver abscess: open incision and drainage, aspiration, and the evacuation of the abscess cavity by a laparotomy, with subsequent closure without drainage. Aspiration alone is effective in a large proportion of cases, and is apparently the method of first choice. The author insists that it is necessary to give at the same time a large dose of emetine. He believes that open drainage should scarcely ever be necessary. It must be remembered that the diagnosis is not always certain before laparotomy. This is especially likely to be the case where the disease occurs in the European, who seeks help far earlier in the course of the illness than does the native Indian. Sometimes, too, as mentioned above, the abscess is in a situation inaccessible to the needle. For these patients the third method has many advantages. It allows of complete exploration of the liver and gets rid of the pathological contents of the abscess cavity, whilst there is no danger of secondary infection occurring through an open drainage-tube. Emetine should be given at the same time. The open drainage operation is only indicated where it has been definitely proved that the infection is a mixed one. Amongst those surgeons who have had large experience of liver abscess and the treatment of dysentery by emetine, there seems to be a difference of opinion as to the possibility of an abscess of the liver, of any size, completely absorbing. In the *Indian Medical Gazette* for October, 1924, Captain A. Sargood Fry reports two cases of large abscesses, demonstrable by X rays, in the right lobe of the liver, in which the clinical cure of both patients, with complete absorption of the abscess, was effected by the administration of emetine hydrochloride hypodermically alone. He is of opinion that aspiration can in many cases be dispensed with, and he thinks that the spontaneous absorption of a large sterile abscess has no injurious effect upon the patient's health. Demonstration of the cure of those two patients without the aid of aspiration is interesting, but it may be doubted whether, as a general rule, it is advisable to withhold the assistance which aspiration affords to the obliteration of the abscess cavity. Aspiration has another advantage. It reveals those cases which, because of a secondary septic infection (14 per cent. of all abscesses), call imperatively for open incision and drainage.

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[1] Il Policlinico, Practical Section, Sept. 29th, 1924.

LESSONS FROM RAT METABOLISM.

THE science of dietary is at the present time very much in its infancy, and there is a great need for further experimental work on nutrition. There is especially a lack of data with regard to suitable food for the nursing mother, the evidence at present available being conflicting. Experiments on animals are of direct value to the dietitian in so far as the principles of animal nutrition are applicable to human beings, and in the September issue of the *American Journal of Hygiene* Miss Nina Simmonds published the results of her investigations into the influence of diet on reproduction and rearing of young by the rat. The recorded data regarding growth and reproduction are based on experiments extending over nine years. Feeding experiments to be of value must be continued for long periods and should involve more than one generation; the fertility and nursing records are a much more sensitive test of a ration than is the growth curve. Miss Simmonds finds that the mammary gland in the rat cannot synthesise certain substances necessary to the well-being of the young—e.g., the amino-acid lysin, vitamin A and vitamin B (apparently the rat does not need vitamin C). "The nursing mother cannot, except in a very limited degree, put into her milk from her bodily reserves that which she does not receive in her food-supply." The experiments show that a high protein dietary during lactation does not interfere with the growth of the suckling. In fact, beneficial effects are quoted as a result of giving the mother rat a diet relatively rich in protein, although such a dietary does lead to progressive kidney degeneration with loss of function. Hartwell,[1] [2] however, on the other hand, finds that a diet rich in protein leads to an abnormal condition of the young, producing spasms and other morbid manifestations which frequently result in death of the offspring; she also demonstrates that these evil effects can be remedied by giving the mother rat a *large* amount of vitamin B—i.e., far more vitamin B than is necessary for the non-lactating animal. Simmonds comments on the supplementary value of certain proteins; for example, muscle protein is a good supplement for the protein of wheat and rolled oats, whereas liver or kidney protein proves more satisfactory when fed with rye and wheat proteins. A combination of the proteins from cereal grains and legume seeds is not a good one, at any rate from the point of view of reproduction. If a ration be low in calcium, the addition of cod-liver oil to such a diet enables the rat to utilise the calcium more efficiently than does butter-fat. Provided that optimal amounts of calcium and phosphorus are present in the diet, cod-liver oil has no superiority over butter-fat. A diet poor in calcium results in sterility; fertility can be induced by adding cod-liver oil to this diet; the rat can then rear her young, but at the expense of herself, for she loses calcium from her skeleton, and will collapse after rearing one or two litters. The superiority of cod-liver oil over butter-fat in this respect is due to the fact that cod-liver oil contains more of the factor concerned with bony growth than does the butter-fat. Simmonds seems to aim at finding one diet which is entirely suitable for all periods of life, while Hartwell [4] maintains that the periods of growth, gestation, and lactation probably have separate needs from a nutritional point of view. Mitchell,[6] in his paper on the nutritive value of proteins, states that the biological value of proteins for growth is a different problem from the biological value of proteins for maintenance, and further, that the conditions of gestation and lactation also call for separate investigation. We notice that Simmonds finds that it is only to within a very limited degree that the mother sacrifices her bodily reserves, yet Korenchevsky [5] states that the maternal organism will sacrifice her own tissues as far as possible for her offspring. Hartwell [2] has shown that a nursing rat which is receiving a badly balanced diet can lose as much as one-third of her body-weight in ten days. Simmonds' paper is an excellent survey of her own far-reaching experiments. They have yet to be brought into proper relation with the work of others in the same field.

THE CAUSE OF DEATH IN MALARIA.

WHAT are the pathological conditions which bring about a fatal issue in malaria? Dr. C. Seyfarth, of Leipzig, has set himself to answer this question.[*] Between 1916 and 1918 he conducted 200 post-mortem examinations on fatal cases of malaria occurring in the severe epidemic in the Balkans, when much work was done by various pathologists, whom he quotes. In his consideration of the causes of death in malaria he leaves out of account cases where the patients, after a prolonged history of malarial cachexia, died of some intercurrent disease. Death in acute malaria may occur very suddenly, and is often puzzling to the pathologist, sometimes being ascribed to apoplexy, heat-stroke, or even to dysentery. Dr. Seyfarth differentiates seven causes of death as follows: 1. Septicæmia, which he states accounts for 30 per cent. of the total deaths in malaria. It is due to massive infection, when severe bodily hardships have reduced resistance and permitted an incredibly rapid numerical development of the parasites, so that one, two, or more are found in each red cell. In few cases does complete development of the parasite occur; toxæmia sets in, with coma and heart failure as sequelæ. Post mortem there is little pigmentation or other change in the internal organs. From such toxæmic cases must be distinguished those with parasitic embolisms in all or several organs. These latter cause the various clinical forms of pernicious malaria such as cerebral and pneumonic, and are due especially to the subtertian form. The emboli lodge in the capillaries of the central nervous system, in those of the heart, kidney, pancreas, or suprarenals, and can be found there post mortem. 2. Cerebral involvement causes 55 per cent. of the total deaths. Here there are few parasites in the peripheral blood, but they are found in quantity in the brain, which may show punctiform hæmorrhages. 3. Cardiac complications account for 14 per cent. of the total deaths. These cases, when syncope occurs, often end very speedily. Death is due either to specific embolism of the coronary arteries, or to toxic causes with myocarditis or fatty degeneration of toxic origin. 4. Renal complications are responsible for about 1 per cent., emboli causing extensive tubulo-glomerular nephritis. 5. Suprarenal involvement has lately been noted as a cause of death several times by French observers. 6. Acute hæmorrhagic pancreatitis may be set up. 7. Rupture of the spleen. In the course of this complication the patient has a most severe abdominal attack, the spleen swells, the capsule becomes thinned and ruptures spontaneously or after some slight injury, and death is due to hæmorrhage. These seven classes can generally be distinguished after death, but sometimes with difficulty only, and they occur, not only in acute first attacks, but in the flaring-up of chronic cases. With regard to malarial cachexia, Dr. Seyfarth states that death is very often due to some condition introduced subsequently, such as infectious diseases or scurvy, beri-beri, and the like, but many cases with the severest anæmia and bone-marrow change die of portal thrombosis. A. Bignami and others also mention a malarial-waxy condition which may cause death. It must be kept in mind that not only in malarial cachexia but also in both acute and chronic malaria secondary infections may be the cause of death. Of these secondary infections the author found the most frequent to be broncho-pneumonia, dysentery, especially bacillary dysentery, strepto- or staphylo-coccal septicæmias, and ulcerations, in particular gangrenous ulcerations. Further ordinary attacks of infectious disease are apt to reawaken chronic malaria, and in malarial districts appearances characteristic of malaria are sure to be found in the body of a patient dead of any disease whatever.

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[1] Hartwell, G. A.: THE LANCET, 1921, i., 1240.

[2] Hartwell: Biochemical Jour., 1921, xv., 563.

[3] Hartwell: THE LANCET, 1922, ii., 963.

[4] Hartwell: Biochemical Jour., 1922, xvi., 78.

[5] Korenchevsky: Biochemical Jour., 1923, xvii., 595.

[6] Mitchell: Physiological Reviews, 1924, iv., 424.

[*] Arch. für Schiffs- u. Tropen-Hygiene, xxviii., 7, July, 1924.

THORACOTOMY OR ASPIRATION.

THE serious mortality following operative treatment of empyema, especially in small children, has been a matter of concern to the medical profession for many years. Last year a considerable amount of light was thrown upon the nature of this mortality by H. C. Cameron and A. A. Osman (THE LANCET, i., 1923), who showed that the cases which were treated by rib resection during the course of the pneumonia usually died, while those treated after resolution was complete usually recovered. At a recent meeting of the Liverpool Medical Institution, reported elsewhere in this issue, Mr. Thelwall Thomas emphasised the necessity in severe cases of empyema complicated with pneumonia of repeated aspiration before resorting to incision; and in *La Vie Médicale* of Oct. 23rd, 1924, Dr. Ribadeau-Dumas and Prof. Rocher deal with this question. Their opinion with regard to prognosis coincides entirely with that of the authors quoted above, and they deprecate any form of thoracotomy in cases of parapneumonic empyema, or of children in the first two years of life, preferring the removal of pus by aspiration or siphon drainage until resolution in the lungs is complete. Their views on the treatment of metapneumonic empyemata are more conservative than those of the majority in this country; their principal object is to avoid the entrance of air into the thorax, and they consider that intercostal thoracotomy with a minimal opening into the pleura usually yields as good a result as resection of rib, and is the method of choice in most acute cases. This conservative tendency will not be found in the article in which Dr. Carl Hedblom [1] reviews the treatment of non-tuberculous pulmonary suppuration. He considers that the treatment of pulmonary abscess depends mainly on the localisation; if the abscess is central, bronchoscopic lavage or artificial pneumothorax may be of benefit, but the central abscesses are likely to heal spontaneously. Peripheral abscesses should be drained unless the patient is definitely improving under medical treatment. Having shut off the pleural cavity by a two-stage operation, or by suture, he locates the abscess by means of the exploring needle, and burns a tract to the abscess, with the needle still in place, leaving a wide open drainage of the cavity. Should exploration fail to localise the abscess, a tract is burnt to the suspected area and packed, since the abscess may burst into this tract later. For a long-standing chronic abscess he recommends cautery lobectomy as affording the best chance of cure, but admits the danger of fatal hæmorrhage. In discussing the treatment of bronchiectasis he states that in localised forms drainage causes very marked improvement as long as it is kept open. For unilateral diffuse cases he performs an extrapleural thoracoplasty in five stages, accompanied by alcohol injection of the intercostal nerves. Pneumothorax collapse may be used as a test of suitability, if it is followed by relief of symptoms the extrapleural operation is indicated.

NEGLECTED CORNERS OF OTOLOGY.

Dr. J. Kerr Love, who presided at the Otological Section of the Royal Society of Medicine on Nov. 8th, made the striking statement that there had been scarcely any appreciable advance during the last 50 years in the cure of deafness—he was not speaking of surgical treatment. It was only recently that orthodox medicine was making any effort to prevent deafness, and in consequence the management of cases of chronic deafness had been left largely in the hands of the empiricist and the quack. Much deafness was due to infectious disease of the throat, and the more thorough treatment of enlarged tonsils and adenoids was already limiting the otologist's activities. One neglected corner of the otological field was certainly in the hospitals for infectious disease, for otologists were rarely appointed to their staffs. Speaking for Glasgow, he was not aware of any aural specialist attached to the fever hospitals with several thousand beds. Many fever patients still had discharge from ear or nose when they left the hospital. Another neglected corner Dr. Love finds in institutions for the deaf, which may have on their staff a physician, an ophthalmologist, an odontologist, a dermatologist, but no otologist. Deaf-mutes with middle-ear suppuration may require adenectomy to restore their health, although it cannot restore their hearing. Such institutions possess a store of clinical material which may be used for elucidating problems such as the influence of syphilis on congenital deafness. Dr. Love does not go as far as French authorities, who ascribe 25 per cent. of cases of congenital deafness to inherited syphilis. He places the upper limit at 10 per cent., but strongly holds that the effect of syphilis on the ear may extend not merely to the third generation, but beyond it. He does not regard a negative Wassermann as disproving the syphilitic origin in any particular case. Apart from this, the otologists, Dr. Love thinks, have not made the most of their opportunity in guiding the public in the matter of aids to hearing. He hoped some physicist would be found to make practical use of the fact that many subjects of middle-ear disease hear best in a noise. Unfortunately, many children did not respond to electrical aids; in a test which he had instituted at the hands of good teachers with abundant opportunity, out of 60 children tested only four definitely benefited. Dr. Love's review covered the whole period of his own recollection and deserves wide attention.

RICHARD OWEN AT THE HUNTERIAN MUSEUM.

IN his Vicary Lecture, delivered at the Royal College of Surgeons of England on Nov. 12th, Sir Arthur Keith throws interesting light on the almost constant conflict between Richard Owen and the Museum Committee during his tenure of the office of conservator. Hunter had pursued his studies and built up the museum to throw light on man—on the nature of his disorders and diseases and on the manner in which the functions and actions of his body were accomplished. He knew well that the collections he had assembled might be employed for two other purposes. His dissections might be used, not for the study of function but for the classification of all living things into natural groups and orders. He knew that his great collections of fossils opened vistas into past ages of the world. Hunter turned his back on such aims, but two years after his death Cuvier set to work. He built up anatomical collections just for the two purposes which Hunter refused to entertain, and by his genius and industry enthralled the world by his discoveries during the first three decades of the nineteenth century. At first Owen's sympathies were with Hunter's original aims, but they soon became dissipated under the brilliance of Cuvier's sun. When Cuvier visited the Hunterian museum in 1830, a few months before his death, he fired young Owen with his aims and zeal. In Owen's time the Natural History Departments of the British Museum were in abeyance, and Owen set out to make the Hunterian museum supply a national deficiency. He intended it to be the home for the classification of all forms of animal life, for the separation of the animal kingdom into natural groups according to structure. More particularly he intended that the museum should become the headquarters for the interpretation of past worlds of life. If, Sir Arthur Keith concluded, we are to understand the continual friction recorded throughout Owen's time, it is necessary to keep in mind the clash of ideals—the ideal the Museum Committee had in view and the ideal which Owen nursed as if it were his religion. The committee was for ever trying to get Owen to go its way, and he was for ever breaking off to follow his own path. It was in Cuvier's world that Owen lived, not John Hunter's. To study structure and function as a service to medicine we must, in Sir Arthur Keith's words, "go back to Hunter."

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[1] Minnesota Medicine, vol. vii., No. 10.

The fifth British Congress of Obstetrics and Gynæcology will be held in London at the Royal Society of Medicine from April 22nd to 24th, 1925.

The next session of the General Medical Council will commence at 2 P.M. on Tuesday, Nov. 25th, when Sir Donald MacAlister, the President, will take the chair and give an address. The Council will continue to sit from day to day until the termination of their business.

The King has approved of the award this year by the President and Council of the Royal Society of a Royal Medal to Dr. H. H. Dale, F.R.S., for his researches in pharmacology and physiology. The Copley medal has been awarded to Sir E. A. Sharpey Schafer, F.R.S., for his work on physiology and histology. The Darwin medal has been awarded to Prof. T. M. Morgan, Foreign Member, R.S., for his work in zoology, especially his researches on heredity and cytology.

The death of Dr. John Tatham at the advanced age of 81 years removes a great figure in medical statistics, for he was during the active years of his life Superintendent of Statistics at the General Register Office, and his Supplementary Reports on the Mortality of England and Wales and on English Occupational Mortality are works of classical importance. Dr. Tatham's apprenticeship to public health work was served at Salford and Manchester in the 'seventies and 'eighties of last century. A biographical notice will appear in a later issue.

Heritage Craft Schools.—The new wards and operating theatre have now been equipped at the Heritage Craft Schools at Chailey, in order that the necessary orthopædic work amongst the cripple boys and girls in the institution may be carried out on the spot and thus secure the continuity of treatment and education which has proved of such value in these cases.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCVI.

THE TREATMENT OF ACUTE OTITIS MEDIA.

Acute otitis media, when attacked promptly and with particular care in the after-treatment, is comparatively easy to deal with, and a complete cure with perfect hearing, although it cannot be promised, is a reasonable probability. On the other hand, chronic suppurative otitis media is intractable, and the prospect of obtaining even a healed membrana tympani is doubtful; moreover, such healing, if obtained, rarely restores good hearing. Meanwhile, the patient suffers a continuous deterioration in general health, besides incurring a constant risk of dangerous complications. Obviously, no trouble is wasted if it may prevent the acute merging into the chronic condition.

Prophylaxis.

The liability of everyone at all times to an ascending Eustachian infection is greatly increased by sepsis in the nose or throat, or their annexa. And the timely correction of pyorrhœa, nasal turbinal hypertrophies, or nasal accessory sinusitis greatly reduces the actuarial probability of such infection. In children the most frequent predisposing cause is found in septic tonsils and adenoids, especially the latter, which, in suitable cases, may be removed without interference with the tonsils. In brief, prophylaxis comprises the toilet of the mouth, nose, and post-nasal space. But supposing that despite, or in the absence of, these precautions a patient arrives suffering from what seems to be acute otitis media, it is to be remembered that an intolerable boring pain, which has no respite, may be caused by other conditions than acute otitis media, of which it is so characteristic. I refer chiefly to meatal furunculosis and to old impacted wax which has suddenly swelled with moisture; either of these may coexist with an acute middle-ear infection. Again, with almost identical physical signs in both drum-heads, the pain on one side may be so great that no complaint at all is made of pain in the other ear; thus, in order to avoid a second and superfluous anæsthetic, both drums should be inspected.

Having decided that the condition is, in fact, an effusion into the middle ear, the further point at issue is whether this effusion is catarrhal or purulent; that is, whether the drum calls for an immediate incision or not. In those cases where the physical signs indicate only a catarrhal condition, and pending arrangements for operation in the suppurative cases with which this article chiefly deals, an expectant attitude should be adopted.

Expectant Treatment.—Local analgesics give great comfort. It is usual to employ glyc. ac. carbol. 1 in 10 to 1 in 5; or "Ovoids" containing opium or cocaine, made by Messrs. Savory and Moore. A cholagogic purge is essential, preferably calomel.

Operation.

Pus, once diagnosed—in a stereotyped case by a loss of landmarks in an opaque membrane, which, over a part or the whole of its extent, shows a bulge of which the colour varies from yellow, through salmon-pink, to an angry red—must be released. Myringotomy may be performed under a prolonged nitrous oxide anæsthesia, or gas and oxygen, or a light ether narcosis. The incision may reveal only a bead of pus, and this may be obscured by blood, although the hæmorrhage is insignificant. It is imperative to operate, because, first, the middle layer of the drum-head consists of radial and circular elastic fibres, and after a clean incision fewer of these (especially the radial) are severed than if the membrane be allowed to burst; in the former case the opening is less ragged, so that rapid and complete healing is more probable. A second reason for early incision is that before rupture occurs the infection may spread not only to the mastoid, but to the meninges or brain. At the conclusion of the brief anæsthesia, and as soon as the ear has been covered up, the patient, if young, should be digitally examined for adenoids, if this examination has not been previously made. If any are found, their removal should be postponed, for the creation of a raw post-nasal area at this time might spread or maintain an infection, so that a unilateral case might become bilateral, and even in a case already bilateral healing would be invalidated.

After-treatment.

Immediate After-treatment.—Meticulous care in this, including a strict antiseptic ritual for the first ten days, will be well repaid. From one of the various firms who cater for surgical equipment a tin containing six packets of aural dressings should be obtained; also, if the patient be a restless child, a "mastoid cap," which is less liable to displacement than is an ordinary bandage. Circumferential hair should be cut sufficiently short to prevent any stray hair from wandering into the concha. At the close of the operation a wick, about five inches long, of plain sterilised woven-edged ribbon gauze, not more than three-quarters of an inch wide, should be inserted into the meatus for half an inch; the surplus inches of gauze are loosely folded into the concha. Subsequently, the wick is changed every 24 hours; and each day before replacing the wick the meatus is gently wiped out with a piece of similar ribbon gauze made just moist with lot. ac. borac. 75 parts, spir. vin. rectif. 25 parts, and two or three drops to the ounce of tinct. iodi. After two or three days there is a tolerance to the warm sensation produced by the alcohol, which may be gradually strengthened up to 40 per cent. These manœuvres are facilitated by gently pulling the pinna backwards, thereby straightening out the curve in the cartilaginous meatus and rendering access more direct. Quite possibly no pus will ever be seen, even on the first dressing; the drum-head heals by first intention, and is intact in a fortnight or less. The friable healed area would be easily reopened by slight trauma or sepsis, and it is wise to keep a very light wick in the ear for another fortnight. After three months it may be difficult to find a scar. It is not desirable to syringe the ear at this stage.

Remote after-treatment differs according to the course of the case: whether (*a*) favourable (fortunately common) as heretofore outlined, or (*b*) unfavourable.

(*a*) *Favourable Cases.*—An alkaline nasal douche, in all patients old enough to use it, should be instituted as soon as acute symptoms cease, and continued twice daily for six weeks. In small or intolerant children a spray should be substituted. After two months the membrane is strongly healed, and then, but not sooner, if slight deafness or tinnitus remain, the mobility of the drum-head should be simultaneously examined and encouraged by using a Siegle's speculum, which provides a feeble form of air-massage. More vigorous movement may be required, as supplied by a pump attached to an electrical motor of the Pantostat type. And, to complete the cure, a few inflations with the Eustachian catheter may be most helpful of all. Any adenoids should be removed, and, if septic, the tonsils also by dissection, as a precaution against recurrence.

(*b*) *Unfavourable Cases.*—Suppose that during the first few days pus, instead of being absent, persists or even increases, and at the end of a week there is still otorrhœa, with slight irregular pyrexia and perhaps trivial aching discomfort, it is clear that healing by first intention has failed, and, as in the case of any other wound in like condition, dry dressings no longer meet the case. Recourse must now be had to syringing, twice or thrice daily, but at first with only the most bland unirritating fluids. Warm lot. ac. borac. is the best, to which, as in swabbing out the favourable cases, alcohol may be gradually added up to 25 per cent. As useful alternatives warm aqueous solution of resorcin, 4 per cent., or of chinosol, 1 in 1000, may be tried. Under this régime the membrane may heal in another two weeks. If not, if the suppuration still continues, and the pus instead of becoming steadily thinner and more scanty remains yellow and so thick that its inspissation sometimes threatens to block its own egress, a stronger antiseptic is called for. An effective lotion is warm mercuric potassium iodide, 1 in 4000. There are various useful lotions and preparations for the treatment of obstinate otorrhœa, but their use, as also such methods as ionisation, belongs rather to the subject of chronic otitis media. If after using a lotion for three more weeks—that is six weeks from the onset of the infection—there is still no sign of healing, the possibility of chronicity must be faced. And here, as regards treatment, we are at the parting of the ways; two courses are available.

The first possible course is to temporise by using a vigorous cleansing agent such as hydrogen peroxide. This, despite its valuable properties, carries about, by the mere mechanical movements of its bubbles, any and everything which they loosen—including infected debris containing micro-organisms which have escaped destruction. In the early days, therefore, the infection may be spread by its use. Later, when a barrier of granulation tissue has shut off surrounding areas, hydrogen peroxide is a good friend. From the point of view of obtaining healing and good function, its use is an admission of probable defeat, implying that the case is already on the border-line of chronic suppurative otitis media, and as such passes out of the province of these notes. In some cases it is necessary thus to temporise with hydrogen peroxide, but in others there is an alternative.

The second course is to face the issue and apply the ordinary surgical principle of counter-drainage. In obstinate cases of recent acute suppurative disease counter-drainage by a tube placed in the antrum after a simple mastoidotomy is often the best course. The antral cavity, of course, becomes obliterated by granulation tissue which gradually becomes fibrous, and there is no consequent functional disability. The usual outcome is that an acute condition which threatened to become chronic rapidly ceases, with perfect healing, and—after perhaps a few subsequent Eustachian inflations—excellent function results.

If this more active method is to be pursued, it must not be long delayed. It should be considered in any case which obstinately persists for three weeks, and undertaken before the lapse of eight weeks.

H. LAWSON WHALE, M.D. Lond., F.R.C.S. Eng.,
Otologist to the Hampstead General and to the
London Temperance Hospitals.

ROYAL INSTITUTION.—Concerning the Habits of Insects is the subject of the ninety-ninth course of Christmas lectures to be delivered at the Royal Institution, 21, Albemarle-street, London, W. 1, this year by Mr. F. Balfour Browne, lecturer in entomology at the University of Cambridge. The first lecture is on Dec. 27th on Insect Collecting and What it Leads to, followed by the Habits of Bees and Wasps (Dec. 30th), Habits of Caterpillars (Jan. 1st), Habits of the Dragon-fly (Jan. 3rd), Habits of the Water-beetle (Jan. 6th), and the Habits of Insects and the Work of Man (Jan. 8th). The lecture hour is 3 P.M.

COLLEGE OF PHYSICIANS OF PHILADELPHIA: ALVARENGA PRIZE.—The Alvarenga Prize for 1924 has been awarded to Dr. Gordon Cameron, Victoria, Australia, for his essay entitled Pancreatic Anomalies: their Morphology, Pathology, and Clinical History. The next award of the Alvarenga Prize, amounting to about $300, will be made on July 14th, 1925. Essays intended for competition may be upon any subject in medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. Further particulars may be obtained from the secretary, Mr. John H. Girvin, 19, South 22nd Street, Philadelphia, Pa., U.S.A.

Special Articles.

MODERN MEDICINE IN EGYPT.

EGYPT is a land rich in historical associations with the science and art of medicine. Even before the time of Moses, one of the earliest of public health workers, whose account of what was known in his day of midwives and general hygiene is to be found in the Pentateuch, there were many deities who were supposed to preside over the cure of disease. Isis, Seraphis, Chonsu, and Thoth are amongst those who were worshipped as medical divinities. Later, with the birth of Hippocrates (460 B.C.) "medicine was separated from philosophy"[1] and treated as a more exact science in Egypt, and Celsus gives much information on the school of anatomy at Alexandria, which remained famous up till A.D. 300. Galen studied medicine in Alexandria about A.D. 150, and even when he settled in Rome he constantly urged students to visit that city, which was then the centre of the intellectual world. The first hospital in Egypt is said to have been built about A.D. 875. The Muristan was a remarkable institution established in Cairo in 1286, and even in recent times its ruins have been used as an eye dispensary. The Kasr-el-Ainy palace was turned into a hospital in 1799 and rebuilt in 1812; later it became the earliest government medical school in Egypt. With the occupation of that country by England a completely new school of medicine was established in it which still continues to be the centre of medical education and research in that country. Under imperial guidance public health work in Egypt has striven with manifold success "to combat a variety of diseases and solve a series of problems possibly without a parallel in any other part of the world, for Egypt shares in a large measure the pathology of both temperate and tropical lands."[2] With the withdrawal to a marked extent of this imperial guidance it seems an opportune moment for considering certain aspects of modern medicine in Egypt which have from time to time formed the subjects of papers contributed to these pages.

Anthelmintic Work.

During 1923 about 50,000 new patients attended the six special annexes which have been set up in connexion with the Kasr-el-Ainy Hospital, Cairo, and the hospitals in five other large towns.[3] Each of these annexes is a complete unit consisting of waiting-rooms, latrines, treatment rooms, clinical laboratory, and rest-shelters. The patients, of whom 70 per cent. are men, are examined from a general point of view and specimens of dejecta are obtained, and in this way all positive cases suitable for treatment are easily selected. Of these patients the great majority are infected with bilharziasis or ankylostomiasis. In the bilharzial cases antimony is used with marked success. Intravenous injections of antimony sodium tartrate are given, this treatment being carefully controlled by routine microscopical examination of the excreta, and no case is considered cured until living ova permanently disappear. If the patients attend regularly for injections, such a result is usually obtained after a course of 12 injections spread over four weeks, and only about 2 to 4 per cent. require a second course to ensure a cure. With careful selection of cases and with proper medical supervision during the period immediately following the injections, when the patients rest in the shelters, the treatment adopted seems to be remarkably free from danger. Emetine has also been used in the treatment of this disease, but it is too expensive a drug for routine purposes. In some districts intestinal bilharziasis is particularly prevalent, and the diffuse papillomatosis sometimes occurring in the rectum in this disease has been successfully treated in certain cases by complete excision of the affected mucous membrane. The constant tenesmus associated with the passage of blood and mucus condemns the patient to such a state of misery that even if this operation is attended by untoward results, such as stricture, which occurred in one of the eight cases recently reported,[4] the patient's condition is infinitely to be preferred to his previous state. A tube of as long as 17 inches has been successfully removed in one case and the operation offers a good chance of cure of this most distressing condition.

Ankylostoma cases form about 40 per cent. of the patients treated at the anthelmintic centres. Laboratory diagnosis is made as a routine despite the fact that severe anæmia is almost always due to ankylostomiasis in Egypt. The treatment adopted is the administration of carbon tetrachloride or oil of chenopodium, and this is continued until ova are no longer found in the excreta. As a rule, two treatments with the former or three with the latter drug prove effective. The anæmia resulting from this disease has also to be treated, and in severe cases due to this parasite or to bilharziasis blood transfusion is sometimes necessary. In connexion with this operation, which is also employed for primary anæmia and surgical shock and has been suggested for use in deficiency diseases such as pellagra, diabetes, and rickets, certain interesting points arise with reference to the compatibility of the bloods of the various races in Egypt. "There appears to be perfect mutual agreement between the transfused blood of Negro, Negro-Arab, Egyptian, and Levantine races, as well as that of fair-haired Turks or Circassians."[5] The proportion of Group IV. donors is low as compared with Europe, and it is believed that the parasitic diseases occurring in Egypt may be responsible for a modified positive Wassermann reaction in certain cases, making the selection of suitable donors somewhat complicated.

Rabies.

To the Kasr-el-Ainy Hospital in Cairo are brought about 2000 cases of animal bite a year and about 15 of these cases develop hydrophobia, consequently affording a remarkable opportunity for the study of this disease.[6] Rabies is endemic among the dogs, jackals, and desert wolves in Egypt, and while the incidence of this disease among camels is low, these animals produce the worst bites and constantly figure in the statistics. The latent period of the disease appears to be, on the whole, shorter than has been reported from other parts of the world, and while it is believed that less than 1 per cent. of cases bitten by all animals develop rabies the difficulty of establishing statistics is great, as the animal often escapes entirely or is shot. The disease can generally be diagnosed with certainty from the clinical features, but inoculation of filtered human saliva into the brain of a rabbit is usually undertaken as a confirmatory test. Treatment consists of cauterising the wound, followed by the usual inoculation of the dried cords of rabbits. Should violent symptoms arise they can often be controlled by hyoscine and morphine, while injections of novarsenobenzol are sometimes employed. Pathological investigations into the disease have been disappointing, Negri bodies being found in only 20 per cent. of undoubted cases.

Goitre.

Egypt appears to offer a very interesting field for the investigation of the ætiology of goitre. While adenomatous goitre is not uncommon, "disorders of secretion resulting, on the one hand, in hyperthyroidism or exophthalmic goitre and, on the other, in myxœdema or cretinism are almost unknown."[7] This refers more particularly to the fellaheen, for amongst Egyptians of wealth and leisure these latter diseases are found much more frequently. The conclusion has been reached that as far as adenomatous goitre is concerned it is almost entirely due to a polluted water-supply in non-riparian villages. With regard to the absence of disorders of secretion of the thyroid gland among the labouring classes of Egypt, a very interesting field for speculation is thrown open. Whether it is something to do with the diet, the rarity of nervous diseases, the free uncomplicated life which is led, or due to an inherent difference in the endocrine balance of the Egyptians remains a fascinating and open question.

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[1] Sandwith: The Medical Diseases of Egypt, 1905.

[2] Balfour and Scott: Health Problems of the Empire, 1924.

[3] H. B. Day: THE LANCET, 1924, i., 435.

[4] R. V. Dolbey and I. Fahmy: THE LANCET, 1924, i., 487.

[5] R. V. Dolbey and A. W. Mooro: THE LANCET, 1924, ii., 547.

[6] R. V. Dolbey and Katib: THE LANCET, 1924, i., 538.

[7] R. V. Dolbey and Omar: THE LANCET, 1924, ii., 549.

Hospital Accommodation.

While there is about one hospital bed to 800 inhabitants in Cairo, the proportion reaches about 1 to 15,000 in the provinces, and the pressing need for extended hospital accommodation is evident. This need of the provinces for additional hospitals must not, however, be allowed to overshadow completely the fact that if Cairo is to maintain its position as a great centre of clinical instruction a new hospital is necessary there, and it is a matter for regret that the projected scheme for the rebuilding of the Kasr-el-Ainy Hospital in Cairo is at present at a standstill. As far as special hospitals are concerned, Egypt seems to be in a particularly happy position with regard to ophthalmic work. Thanks to generous private donations and enlightened State aid, an ophthalmic system has been built up consisting of five completely-equipped travelling hospitals, 16 permanent hospitals, and two ophthalmic departments attached to general hospitals. Through the devoted labours of a British administrator a highly efficient staff has been collected, and with the clinical aspect kept strongly in the foregound much of the administrative work has been successfully relegated to clerical subordinates.

The Future.

The future of medicine in Egypt is a matter for speculation. With a host of historical associations and the products of modern public health work under British direction, time will show whether the Egyptians will be able to cope more or less unaided with complicated hygienic conditions and maintain the comparatively high reputation which the Cairo School of Medicine at present enjoys. It possesses unrivalled opportunities, as recent papers published in our columns amply demonstrate, and it has a rich and interesting clinical field. It requires judicious development and a modern hospital with a wise and temperate control, free from political passion and racial bias. Given these it should become the medical Mecca of the Near East. On the other hand, ineffective control, political interference, or a policy of *laissez-faire* will almost certainly lead to decadence and eventual disaster.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Universities Election.

AT the time of writing great political interest is being taken in the contest for the three seats representing the four Scottish Universities, the only constituency in the country not yet decided. At first sight the process of electing the candidates seems slow, but considerable difficulty is being experienced by the Registrar through members of the General Council of each University failing to keep in touch with their University or to register change of address. For this reason a great many letters enclosing voting forms have been returned by the postal authorities. There appears to be a misunderstanding in some cases that the General Council of any University is the same body as the General Medical Council, and that the compulsory notification of change of address to the latter is sufficient. The two bodies are entirely distinct and any change of address should be sent to each Council; in this way much inconvenience and disappointment may be avoided. In ordinary circumstances little more than a passing interest is taken by graduates in reports circulated by the University Council, and their non-arrival is not missed. At elections members are naturally annoyed when voting papers do not reach them, completely losing sight of the fact that in the past some change of address has not been sent in. This is especially the case at present when the University seats have been for so long uncontested, and therefore no necessity has arisen for an election.

Aberdeen Medico-Chirurgical Society: Tumours of the Breast.

At the opening meeting for the winter session of this Society Dr. G. M. Duncan, the President, delivered his presidential address on Tumours of the Breast. Dr. Duncan's experience of such cases extended to several hundreds, and after some preliminary remarks upon the importance and difficulties of histo-pathological examination, he dealt first with the carcinomas. Points of interest in these tumours were the rarity of their occurrence in the male breast (in the series only six were in the male); the difficulties of diagnosis in the early stages; and the extraordinary high percentage of carcinoma in all breast tumours. Dr. Duncan described the method of rapid diagnosis by sections at operation, and thought that this method might be more extensively used, provided that the pathologist had the necessary experience of the technique and the appearance of such sections. Illustrative cases were quoted where the method had been of considerable value. The different varieties of breast cancer were then described, and special reference made to the difficulties of diagnosing cancer commencing in a mastitic breast, and of distinguishing malignant types of papilliferous cyst-adenoma. From his experience of cancer cases Dr. Duncan drew certain general conclusions: (1) Cancer of the breast in young women tended to be much more malignant than in those of greater age. (2) Cancer associated with inflammatory conditions of the breast often tended to be peculiarly malignant. (3) Speaking generally, he held that the more cellular the character of the growth the more malignant it was. (4) It was unwise to draw any definite conclusion merely from the size of a growth as to its malignancy both local and from the point of view of the occurrence of metastatic deposits. Cases were quoted showing that a large growth might be removed with complete success, while a small growth might be removed with rapid local recurrence or development of metastatic deposits. Emphasis was laid on the occasional occurrence of metastatic growths producing definite physical signs, where the primary tumour in the breast was so small as to require the most careful examination for its detection. Dr. Duncan then described other types of breast tumour, for example, fibro-adenoma, sarcoma (very rare), inflammatory conditions, syphilis, and tubercle. He suggested that some of the vague fibrotic conditions found in the breast might, in certain instances, be of syphilitic origin.

Edinburgh: Jubilee of the Longmore Institution.

This hospital for incurables, which is under the management of the Royal Edinburgh Hospital for Incurables, has now just celebrated its jubilee. Originally intended to accommodate 22 beds, there are now 160, while an auxiliary institution at Liberton has more than 50 beds, thereby multiplying the original number of beds by nearly ten. For this much credit is due to the management, as in the first 20 years of the existence of the hospital the total deficiency was under £2000, while the total sum drawn from capital to meet the deficiency on annual income, over £93,000, was made up from legacies and donations. Sir Henry Cook, the chairman of the board of management, who presided on Nov. 7th at the fiftieth annual meeting of the board, referred to the satisfactory progress that had been made, and expressed the hope that the voluntary effort of our great healing institutions would never be superseded by a paid management. Sir Leslie Mackenzie, a member of the Scottish

Board of Health, said that in the last full year the number under treatment in the two hospitals was 345, and that in the past 25 years more than 35,000 cases had been admitted. Sir Harold J. Stiles moved a vote of thanks to the managers. Referring to the Liberton Hospital, he said that when he saw the outside huts he realised how it was that some of the cases of tuberculous diseases of the spine which were sent into the hospital incurable had gone out cured.

Medico-Chirurgical Society of Edinburgh.

The opening meeting of this Society took place on Nov. 5th. The meeting opened with the election of new office-bearers who, together with those already in office, are:—President: Sir David Wallace. Vice-Presidents: Dr. George Mackay, Dr. Robert Thin, Dr. William Guy. Councillors: Sir Robert Philip, Dr. Chalmers Watson, Dr. John Orr, Dr. J. A. H. Duncan, Dr. A. H. H. Sinclair, Dr. W. T. Ritchie, Dr. J. S. Fraser, Mr. J. M. Graham. Treasurer: Dr. W. Macrae Taylor. Secretaries: Mr. W. J. Stewart, Dr. John Eason. Editor of Transactions: Dr. Fergus Hewart. The following new members were elected: Dr. H. R. Dodson, Dr. J. Donald Gunn, Dr. James Irvine, Dr. Alexandra Lothian, Prof. T. J. Mackie, Dr. W. N. Boog Watson, and Dr. A. R. Wightman. During the session eight ordinary meetings are arranged, commencing at 8 P.M. The dates of the remaining seven are: Dec. 3rd, Jan. 21st, Feb. 4th, March 4th, May 6th, June 3rd, July 1st. In addition there will be two clinical meetings in the Medical Out-patient Department of the Royal Infirmary on Nov. 19th and May 13th at 5 P.M.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Prosecution for Soliciting a Bribe.

AN important prosecution took place in the Central Criminal Court, Dublin, last week, when two members of the late Co. Roscommon Board of Health, recently dissolved, were found guilty of soliciting fees or rewards to induce them to vote for the election of a particular candidate as medical officer of a dispensary district in the county, as I wrote in my letter of Oct. 18th. Prosecuting in the first case, that of John Corrigan, Mr. Carrigan, K.C., said that the case was an important one, involving a charge of attempted corruption to secure the vote of a member of the Board. The prosecution was brought under the Public Bodies Corrupt Practices Act. The offence was a misdemeanour, and one consequence of conviction would be to deprive the man convicted of the right to vote for seven years. It was not necessary that any money should pass. The offence was in corruptly soliciting for himself or another a fee or reward to bring about such an election. Evidence was given by friends of Dr. T. P. McDonnell that when they asked Corrigan to vote for Dr. McDonnell he replied, that "none of the candidates was a brother of his, and he would vote for the man who paid him most." In the other case, Dr. McDonnell swore that Thomas Moran had told him he could have his vote for £50, or that for £400 or £500 he could secure enough votes to make sure of the election. In both cases, after a verdict of guilty, the prisoners were put back for sentence. For years past rumours have been current that elections by local authorities are influenced not merely by undue family and political connexions, but are subject to bribery and corruption. This is the first occasion on which anyone has been prosecuted on such a charge. Immediately after the election Dr. McDonnell objected to it on the ground of bribery and demanded a sworn inquiry by the Ministry of Local Government and Public Health. The inquiry was promptly held, and enough evidence was forthcoming to justify the criminal prosecution, which has now been brought to a successful issue. The activity of the Ministry of Local Government in investigating the charge and of the criminal authorities in ordering a prosecution is highly satisfactory. Such action will, it is hoped, teach a lesson to rogues in other parts of the country who may be prostituting the interests of the public and of the sick poor to their own profit.

Physical Training in Schools.

On the invitation of the Co. Dublin Branch of the National Athletic and Cycling Association of Ireland, a conference was held last week in the Royal College of Surgeons to discuss the steps that should be taken to introduce a system of physical training into the schools of Ireland. Mr. P. Lynch, K.C., presided, and the conference was attended by representatives of the Irish Medical Association and a number of persons interested in health and education. It was stated that there was already a fair system of physical training in the secondary schools, but none in the primary schools. The importance of physical training to improve the health and physique of the race was emphasised. It was pointed out, also, that the time was opportune to press the matter, as a system of medical inspection of school-children was about to be put in force, and the two reforms should go together. After an informative discussion a small committee was elected to study the systems in vogue in other countries, and to press its views on the Ministry of Education.

AMERICAN PUBLIC HEALTH ASSOCIATION.

FIFTY-THIRD ANNUAL MEETING.

(FROM OUR OWN CORRESPONDENT.)

MEMBERS of the American Public Health Association, drawn from all parts of the United States and from Canada, met in Detroit for their Fifty-third Annual Convention from Oct. 20th to 23rd. On the first day, when the addresses of welcome were delivered, over 600 had registered their presence. The President of the Association, Dr. W. H. Park, is recovering from an attack of pleurisy and was not able to be present. His place was taken by Dr. J. W. S. McCullough, of Toronto. After welcoming addresses had been given by the Mayor and Health Commissioner of Detroit, Dr. Thorvald Madsen, Chairman of the Health Section of the League of Nations, described the work of that body. Many members of the large audience were not able to hear Dr. Madsen, who speaks with more of an English than an American accent, and on this account, coupled with the political distrust of the League which is still found amongst Americans, the very careful and wise analysis of the work of the Health Section did not excite the interest which it deserved. Dr. Victor C. Vaughan followed with a lively impromptu address largely in praise of Michigan. He told the audience, among other historic achievements of his fellow citizens, that a member of the health department had discovered in the 'eighties a method of artificial respiration which had been widely taught and practised as the Michigan method. When Sir E. S. Schafer came to Detroit and described his prone pressure method it was found that the two were practically identical. Dr. Vaughan maintains that we should not be satisfied with raising the expectation of life while neglecting the quality of the lives we prolong. It does not profit us to increase the number of youthful degenerates and senile dements. Dr. Vaughan proposes to devote the rest of his life to the improvement of the human stock. These speeches were followed by an informal reception and dancing. The main work of the conference was divided between the various sections which sat more or less contemporaneously—an indication that even the field of public health in this country is not kept free from the vice of specialisation.

PUBLIC HEALTH ADMINISTRATION.

In the Public Health Administration section the Dick tests and immunity results in scarlet fever came under review. Among other subjects discussed, Dr. Adam H. Wright, of the Toronto Department of Health, considered the cause or causes of cancer. He was not hopeful that a specific cause of cancer would be discovered nor that we should be greatly helped by its discovery. The discovery of the tubercle bacillus had not helped greatly in the treatment of consumption.

An impressive study was that reported by Dr. Haven Emerson on

Hospital Morbidity Statistics.

Five years' experience with scarlet fever, diphtheria, and measles covering 16,435 hospital admissions had been analysed to determine if possible a basis for judging of the value of hospital care for these diseases, and to formulate principles of hospital practice which would contribute to (*a*) a lower mortality from the original or primary infection; (*b*) a reduction in the incidence of secondary infections; (*c*) fewer complicating lesions; (*d*) a shorter period of hospital care. It appeared to be true that periods of crowding and shortage in nursing personnel were always accompanied by higher case mortality-rates, together with higher incidence of secondary and complicating infections, this experience suggesting the propriety of establishing minimum floor space per patient and maximum patient ratio per nurse expressed in hours of nurse service per patient per day or week. The death-rate among children under 2 was so high, especially in measles, that it was believed inadvisable to admit such patients to hospital care even when the home conditions were unfavourable, if by visiting nurse service passable conditions could be provided. He said that the frequency with which deaths occurred within the first 48 hours after admission, especially from diphtheria and from pneumonia in measles, indicated the necessity of renewing the education of physicians in the early and adequate use of diphtheria antitoxin in suspicious cases and of declining to permit transfers from other institutions in cases of measles where complicating pneumonia had already set in.

Dr. R. G. Leland, Chief, Division of Hygiene, Ohio Department of Health, Columbus, Ohio, laid down certain essentials in the

Administration of a Public Health Nursing Service.

Public health nursing had, he said, come to occupy a foremost position in combating preventable causes of disease and death. It had shown a marvellous growth both in volume of work and breadth of application; it should be almost entirely educational in character. He held that whatever the community problem and number and type of local groups interested in public health, the nursing service should be directed by the administrator of the official health agency. Compensation for health nursing should be consistent with the type and dignity of the service. The value of a service that prevents sickness and prolongs life is too often unfairly estimated.

The question of generalised versus specialised nursing was taken up again at a public health forum, and gave rise to a lively discussion. Dr. Haven Emerson and Miss Elizabeth Fox declared for generalisation under supervision of specialists, the former laying down the standard of one nurse for every 2000 population as a minimum.

SECTION OF LABORATORIES.

In the Laboratory Section the influence of intensive work on diphtheria carriers upon the diphtheria morbidity was discussed by Dr. W. Royal Stokes, Dr. John F. Hogan, and Mr. C. Leroy Ewing, of the Bureaux of Bacteriology and Communicable Diseases of the Baltimore Health Department.

After reviewing the literature to show the relative prevalence of diphtheria carriers and positive virulence tests in convalescents, non-contacts in the general population, and contacts with cases of diphtheria, the speakers stated that practically all cultures from convalescents were virulent, whereas in a general mixed population, excluding schools and other institutions, 0·09 per cent. show virulent diphtheria cultures. The speakers referred to their study of a large number of initial contacts in Baltimore where they found that about 1 in every 100 harboured virulent diphtheria bacilli as against about 1 in 1000 in the general community. The statistical evidence presented was not very conclusive. They then described the methods pursued in Baltimore and 17 other comparable cities in detecting and isolating initial contact carriers, and in finding additional release carriers when the house was reported for the release of quarantine.

INDUSTRIAL HYGIENE.

The meetings of the Section of Industrial Hygiene were not well attended, and although those who were present showed a lively interest in the proceedings there was evident a sense of dissatisfaction with the present control of occupational disease.

Prof. H. Field Smyth spoke of anthrax as a "continuing and probably increasing hazard" of American industry. Although satisfactory methods were available for the disinfection of hair and wool they were not being carried out properly in the smaller plants where the necessary expert supervision was not available. Speakers representing private organisations or workers' unions gave interesting accounts of their work. It was particularly gratifying to hear of a New York Union that had actually declared a strike to enforce the decisions of its sanitary board. But this represented an unusual development of the health conscience. On the whole, much remains to be done in the way of educating both employers and workers. As regards the former it must be realised that the appeal to self interest has a limit. There comes a point at which the expense of improving sanitary conditions, wages, &c., is greater than the return from increased efficiency. It would be unfortunate to set the limits of industrial hygiene at this point.

Most apparent, and in marked contrast with English conditions, is the need for better Governmental supervision of occupational diseases. Prof. E. Hayhurst, of Ohio State University, laid this need very eloquently before an open session of the convention.

REPORTS.

Some of the committee reports were inconclusive, the reporters evidently fearing that they might make a painstaking survey without its leading to any direct results.

The Committee on Nomenclature had a number of useful definitions to suggest, among them the following:—

Health in the absolute sense.—That quality of life in which the body is sound, the various organs function naturally, and the whole organism responds adequately to its environment (the definition in a relative sense is similar). *Hygiene* is the science and art of the protection and promotion of health.

The Committee on Social Hygiene reports no proof of the rumoured decrease in venereal disease. They find the attitude of the public improved and recommend attempts to control procuration and to enforce quarantine of diseased individuals. The Committee on Cancer suggests that health officers attempt to secure the reporting of cancer morbidity. Free pathological examinations should be available. The periodic health examination is warmly endorsed.

Dr. Henry Vaughan was elected President of the Association for the coming year, and it was decided to hold the 1925 convention at St. Louis.

DONATIONS AND BEQUESTS.—Miss Rosalie Anne Le Geyt, Jersey, left £1050 to the Royal Hospital for Incurables, Putney, and £1000 to the Royal United Kingdom Beneficent Institution.—Miss Clara Walker, of Bideford, Devon, left £1000 to the Bideford and District Hospital.—Mr. Thomas Henry McCormick, of Lancaster, left £500 to Ancoats Hospital, Manchester.

Correspondence.

"Audi alteram partem."

TREATMENT OF MENTAL DISORDER ON A VOLUNTARY BASIS.

To the Editor of THE LANCET.

SIR,—I have read with great interest Dr. Edward Mapother's views on this subject in your issue of Nov. 1st, and I admit, as everyone must do, his high qualifications to maintain the opinions he has expressed. I believe, however, that Dr. Mapother does not entirely do justice to the facilities available in existing mental hospitals, and I ask permission to set forth some of the experiences gained in the treatment of mental diseases on a voluntary basis in an old-fashioned asylum, working under that name.

I should say that this Asylum, which contains 150 beds, cares only for patients of the private class, but many are admitted at low rates of board, and are not distinguishable socially from the rate-aided patients in a county asylum. During the last four years (ending Sept. 30th) 231 patients have been admitted, of whom 111 were certified and 120 (or 51·9 per cent.) entered as voluntary boarders. (No selection of cases has been carried out, and every patient who offered was accepted.) The voluntary admissions represent 103 individuals, of whom one entered six times and 12 entered twice. In addition, seven patients previously certified entered voluntarily and are included in the total voluntary admissions.

The criteria for admission on a voluntary basis are: (1) a recognition on the part of the patient that he is ill (without necessarily any insight or appreciation of the nature and origin of his illness), and (2) willingness to allow himself to be treated, as expressed in a signed application for admission. I am aware that pressure is put upon hesitating and doubtful applicants for admission by their friends and relatives, the threat of certification and compulsory entry being the usual instrument. I am no party to any such pressure. If I see a dubious patient before he has made up his mind, I limit myself to the statements that whether he enters or not is a matter of complete indifference to me, that if he decides to do so I shall do what I can to recover his health and make him comfortable, that if he does not like the place he can go away whenever he likes; lastly, that *under no pretext* will he be detained against his will.

During the same period 112 voluntary patients left the Asylum as follows: recovered, 49; relieved, 42; unimproved, 7; died, 14. The average length of stay of the recovered was $4\frac{3}{5}$ months, and of the relieved $13\frac{2}{3}$ months.

The retention of voluntary patients in an asylum for as long as may be necessary for their safety or advisable for their treatment presents much less difficulty than is generally supposed. No distinctions whatever between voluntary and certified patients are made in treatment and accommodation, and many of the certified are unaware of their inferior status. Classification according to the mental state alone is aimed at, but not at all times perfectly achieved. The building is old and in many respects badly designed, and the different rates of board and the varying degrees of social presentability of the patients add considerably to the difficulties. In a more modern asylum and in other circumstances these considerations would not weigh. Keeping in mind the ever-present dread of depressed patients that they are becoming "insane," and their morbid sensitiveness on this subject, I agree with Dr. Mapother that asylum patients are at least as tolerant of the idiosyncrasies of their fellows and of the phenomena around them as are the patients in an ordinary medical ward, and in my experience the complaints of asylum patients are seldom directed against the behaviour of their neighbours.

During the four years three voluntary patients, to whom I had made no promises, were certified and detained in the Asylum. Two of these (1921) were cases of acute mania, whom I should not now willingly receive as voluntaries (both recovered quickly), and the third (1922) was a mild case of chronic mania who made no effort to leave, but who, in spite of repeated warnings, caused alarm among some of the new patients by asserting that he was illegally imprisoned. (One voluntary was certified in order to be removed to a county asylum.) No patient previously voluntary was received under certificates. Twelve patients persisted in leaving against advice. Of these, eight returned after a short interval and continued treatment, and the other four eventually did well at home. Six of the unimproved patients were removed by their relations for various reasons. One voluntary patient committed suicide during an interval of relaxed observation, and another removed by his friends for financial reasons killed himself the day after his discharge.

Rarely a new patient is admitted directly into a convalescent villa or ward, but, as a rule, all patients enter the hospital wards. From that they are duly passed into one of the four other wards or villas available for each sex, or occasionally for special reasons, if the stay is likely to be short, kept in the hospital ward till discharge. Parole is granted to both classes of patients as a matter of course as soon as justifiable, and one aims at the least possible degree of interference and restriction of liberty. Three of the female and two of the male wards are kept locked, but a number of patients from every ward in the Asylum, including hospitals, enjoy parole. Three of the male wards are in charge of nurses.

In conclusion, I agree with Dr. Mapother that the Maudsley Hospital as at present administered offers an ideal method of dealing with a section of the mentally unfit, and with his opinion that in our time the provision of such hospitals in sufficient numbers is impracticable. I differ from his view that voluntary patients cannot adequately be treated alongside the certified, and I have tried to indicate the evidence on which my conclusion is based. The displacement of "The Asylum," either the institution or the name, is not at present practical politics, and the aim should be to render it as fit an instrument for its varied purposes as may be. Mental patients will not voluntarily enter or remain in any institution in which they have not complete confidence, and the demonstrable fact that such patients are entering and returning to existing asylums in appreciable numbers indicates a change in the attitude of the public which should be fostered and encouraged. The more voluntary patients to pass through an asylum the sooner will any weak points in its methods be eliminated. Pessimistic views expressed by medical men on asylums and their value as hospitals are to be deprecated, because no one can estimate how much good work asylums, unhampered by antiquated laws, may be capable of. Unless and until medical knowledge advances to a point where prognosis becomes a certainty, attempts to separate mental sufferers into "sheep" and "goats" will be cruel and dangerous, and thinly veiled attempts to degrade asylums to the mediæval level of a "house of doom" exclusively populated (and presumably also staffed) by hopeless dements, should be strongly resisted by all those who really know anything about them.—I am, Sir, yours faithfully,

W. D. CHAMBERS, M.D., M.R.C.P.E.,
Physician-Superintendent.

James Murray's Royal Asylum, Perth,
Nov. 8th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—I only trouble you with a reply to the letter of Dr. Kerr in your issue of Nov. 8th because he is still grievously in error as to his facts. May I therefore explain to him that the name "dental hygienist" is given to a class of unregistered persons, employed under certain clearly defined limitations, in dental hospitals and public dental clinics in America, in cleaning and polishing the teeth of school-children and in removing superficial deposits of salivary calculus. If Dr. Kerr will read Circular 1279 issued by the Board of Education, he will find that the Minister of Health, after consultation with the Dental Board, has sanctioned "minor dental work" of this nature and that any local educational authority is at liberty to make use of it in school dental clinics.

Dentists, knowing something of the delicacy of the tissues involved and the possibility of injury to the periodontal membrane through the weakening or destruction of the natural defences in the "gingival trough," do not look with favour on the widespread application of these methods. They believe they have pointed out to the authorities a more excellent way. The work done by these dental hygienists has no resemblance to that done by "dental dressers" under the scheme of Dr. Barwise, and I readily accede to Dr. Kerr's request for a statement of the reasons why the dental profession is opposed to the employment of dental dressers.

It is claimed that these persons shall be allowed (1) to conduct dental inspections of the mouths of elementary school-children away from the supervision of the dentist with probe and mirror; (2) to extract temporary teeth; (3) to insert simple fillings; and (4) to treat the first permanent molar. My reply to these claims is this:—

1. The school nurse can by a glance into the mouth of a child and by one or two simple questions, ascertain whether there is need for the child to go to the school dentist. "Inspection with probe and mirror" is a very different thing. It implies diagnosis: otherwise it is a waste of time, as the dentist must re-inspect each case before he can decide on the treatment necessary. Surely the claim that no professional man could consent to accept and to work on the diagnosis of an unqualified subordinate will receive sympathy from the members of the medical profession.

2. Extraction of temporary teeth is not necessarily a simple operation. On the contrary, it is frequently a difficult and delicate operation which, if improperly performed, may result in danger to the permanent dentition.

3. The remarks about extractions apply also to "simple" fillings. It is the constant experience of skilled dentists that cavities which appear "simple" develop during treatment into difficult and complicated cases; a partially-trained person would, of course, not appreciate this.

4. The treatment of the first permanent molar. This tooth is regarded by all competent authorities as the most important tooth in the dental arch. Upon its proper treatment the future masticating efficiency of the child may depend, and none but qualified dental surgeons should be allowed to deal with it.

The dental treatment of children is one of the most delicate and difficult departments of dental surgery, and demands high qualities of skill and dexterity. It is difficult to understand why elementary school-children should be abandoned (on the specious plea of economy) to a course of treatment which, were it attempted in the case of any other children in this country, would render the operator liable to prosecution and the dentist who sanctioned the treatment to the discipline of the Dental Board for "infamous conduct in a professional respect." The sacrifice made by the dental profession to obtain prohibition of unregistered practice of dentistry is surely not yet forgotten. That sacrifice was made on the understanding that it was final, and that not again would the conditions that existed prior to the passing of the 1921 Act recur. The creation of large numbers of unregistered persons permitted by law to perform certain operations in dental surgery would almost certainly result in a future claim for their admission to the Dentists Register. That this is no vain fear is shown by the fact that when the short amending Act of 1923, which gave certain privileges with regard to the age-limit to ex-Service men, was in committee in the House of Commons an amendment was brought forward with the object of giving dental dressers access to the prescribed examination and therefore to the register.

These, briefly stated, are the objections taken by the dental profession to the employment in the school dental service of dental dressers as advocated by Dr. Barwise and supported by Dr. Kerr. With the memory of their own escape from the evil of unqualified assistants, is it too much to ask our colleagues of the medical profession to refrain from assisting the imposition on the dental profession of a like evil, one from which they so lately escaped at a great price?—I am, Sir, yours faithfully,

ROBERT LINDSAY,
Dental Secretary.

British Dental Association, Russell-square, W.C.,
Nov. 8th, 1924.

To the Editor of THE LANCET.

SIR,—If sound conclusions are to be reached, discussion must be based upon facts. To ignore these, or to dismiss them as trivialities, is not conducive to that spirit of scientific inquiry which should precede such reforms as may be desirable in the school dental service. It has already been pointed out in your columns by Mr. Pitts and Mr. Lindsay that there is no shortage of dentists at the present day. In so far, therefore, as the case for the Derbyshire Education Authority is based upon an alleged shortage, it has no foundation in fact. To Dr. Kerr this is a triviality.

The school dental service, at present in an elementary stage of its evolution, lacks many things. One of the most pressing wants is the need for skilled nursing assistance. It should be part of the nurse's duty to give instruction in oral hygiene, to inspect the teeth of the children, and to carry out surface cleaning where possible. In Poor-law schools, where practical instruction such as this is given, the result has been that a considerable proportion of Poor-law children have healthy mouths. The percentage is far higher than the percentage in elementary school-children. Similar results have followed the work of the dental hygienists in the United States. Their work consists in surface cleaning; they are not operating assistants and should not be confused with such.

The agitation of the protagonists of the Derbyshire scheme brings the members of the dental profession face to face with a question of principle. This question is: Is it right that dental operations should be performed by unregistered persons? Recent legislation has answered this question in the negative.

I am, Sir, yours faithfully,
H. W. BREESE, M.R.C.S., L.D.S.

Nov. 11th, 1924.

PUBLIC BATHS: A SUGGESTION.

To the Editor of THE LANCET.

SIR,—At the present state of the problem of housing the general community, particularly that section to which the Chamberlain Act applies, it may be questioned whether the space allotted to the bathroom in small houses really fulfils the object for which it was intended. Cleanliness is a postulate of health, but whether a house contains a bath or not is no criterion of the state of cleanliness of the occupants; the first essential is the possession of enough money to provide hot water, and the second is the acquired habit of preferring to be clean rather than dirty. In fact, to make sure that a family is clean there must be (i.) a bath, (ii.) hot water, towels, and soap, and (iii.) the will and desire to make use of them. Everybody who has any experience of the way the poorer classes are housed and their mode of life, knows that vast numbers of baths are used as coal stores, rubbish shutes, cots, &c., in fact, for anything but the purpose for which they were installed. In nearly every case where this is so, the reason for it is the financial one. An appreciable quantity of coal is required to heat eight or nine gallons of water. The anomalous state now exists that new small houses are being erected containing baths and bathrooms which cannot be used owing to the expense, and the removal of the bath would very materially improve the accommodation.

My suggestion is that we should not build bathrooms in small private houses, but enlarge the existing public baths, and encourage public bathing. The only trouble in this case is that people would not use the public baths because it is not the custom in this country, as it is in parts of the continent. Every individual is sensitive about personal cleanliness, and there is a prejudice against many such public institutions.

Obviously the habits of the older generation cannot be changed; but those of the younger can. If, for the school child, a hot bath, free, once a week and in school hours, were made a part of the school curriculum, and insisted upon by the Board of Education, then a habit of bathing would be engendered which would last long after school-days are over. In two or three generations public baths would be as fashionable and customary as they were in Rome two thousand years ago.

Of course, the financial problem, if this suggestion were carried out, would be an intricate one. Actually it must be cheaper to provide public baths which will be used, than to instal a bath in each of the two and a half million houses required, enormous numbers of which will never be used. Even if it turned out to be a financial loss to the State in actual hard cash, the Board of Education might pay 1*d.* per bath for the school-children, and the individual above school-age would pay for himself; and the local authority need not be the loser. A clean-bodied nation with all the improvements in environment which would spontaneously follow, would be a gain to the nation in the greater man-power which would become available, and this would more than off-set the financial loss. The present sick wastage due to minor ailments of the impetigo type is enormous and these might conceivably be abolished altogether.

I am, Sir, yours faithfully,

Southampton, Nov. 8th, 1924. A. G. G. Thompson.

GENERAL MEDICAL COUNCIL ELECTION.

To the Editor of The Lancet.

Sir,—Will you allow me, through your columns, to thank the Registered Medical Practitioners of Scotland for the expression of their confidence shown by my unopposed return to the General Medical Council as their Direct Representative. It shall be my constant endeavour to continue to merit their trust.

I am, Sir, yours faithfully,

Edinburgh, Nov. 8th, 1924. Norman Walker.

HYPERTONIC SALINES IN CEREBRAL TUMOURS.

To the Editor of The Lancet.

Sir,—I have read with considerable interest the work of Drs. Macbride and Carmichael on the use of hypertonic salines in cerebral tumour.

A false impression might be conveyed by their statement that "we are unable to confirm Cohen's experience as to the duration of the relief. In all our cases the alleviation of the headache did not last more than 36 hours, hence we have repeated the administration of the solution every second day." In my paper I wrote "this period of freedom lasted from 10 hours to two days, but in most cases an intravenous injection every third day kept the patient free from headache."[1] By every "third" day I mean a 48-hour interval between the injections, which, I think, is what Drs. Macbride and Carmichael mean by every "second" day. Whenever necessary I have repeated injections as often as 20-hourly without apparent untoward result. Further extensive experience of the method has confirmed its value.

I am, Sir, yours faithfully,

Henry Cohen, M.D. Liverp.

University of Liverpool, Department of
Biochemistry, Nov. 11th, 1924.

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[1] Brit. Med. Jour., March 8th, 1924.

GENERAL MEDICAL COUNCIL: ELECTION OF DIRECT REPRESENTATIVES.

England and Wales.

An election address has been issued by Dr. H. J. Cardale, Dr. H. F. Devis, Dr. E. A. Gregg, and Dr. G. R. Ward, from the office of the Medical Practitioners' Union (56, Russell-square, London, W.C. 1), to the registered medical practitioners of England and Wales, which runs as follows:—

A Four-Point Programme.

Dear Sir (or Madam),—We, the undersigned, have been nominated as candidates for election as direct representatives for England and Wales on the General Medical Council. W are all in active general and panel practice, and experienced in public work.

The General Medical Council was set up so long ago as 1858, and deals with professional education and discipline The last eleven years have brought the general practitioner so closely into relationship with State Departments, and have seen so great an increase of public interest in things medical, that neither the old education nor the old conception of discipline are any longer adequate.

Moreover, only six out of the total membership of the General Medical Council are directly elected by the profession On the present Council only three practitioners out of forty one are in general practice. There is a growing necessity for increased representation of the general practitioner more especially as the disciplinary powers of the Genera Medical Council which are exercised in his case are almost entirely in the hands of men who know little or nothing o his life under modern conditions, his vexations, his trials and the curtailment of his freedom.

We feel that the scope of education at the present time is almost entirely dictated by those who have no experience of general practice, with the result that it is, in many directions, unsuited for the requirements of general practitioners who form the vast bulk of the profession. The weak points in the education of the future doctor can be most adequately appreciated and their effect most fully realised by those who are themselves engaged in general practice.

We are in favour of a uniform examination for entry to the profession instead of the present varying standards

As general practitioners of considerable experience anxious to safeguard your interests, and alarmed at th encroachment on your freedom, we ask your support in favour of:

(*a*) Increase of direct representatives;

(*b*) Modification of the scope of medical education to sui the requirements of the general practitioner;

(*c*) Uniform standard of examination;

(*d*) A wider range of disciplinary powers.

H. J. Cardale,
Vice-President, Medical Practitioners' Union Chairman, London Panel Committee; Member Insurance Acts Committee, British Medica Association; Member, London Insurance Committee, &c.

H. F. Devis,
Past-President, Medical Practitioners' Union Secretary, Bristol Panel Committee; Member Bristol Insurance Committee, &c.

E. A. Gregg,
President, Medical Practitioners' Union; Membe Insurance Acts Committee, British Medica Association; Vice-Chairman, London Pane Committee; Chairman, Public Health Committee, St. Pancras Borough Council, &c.

Gordon Ward,
Chairman, Executive Committee, Medical Practitioners' Union; Member and Representativ Kent Panel Committee; Member, Ken Voluntary Hospitals Committee, &c.

Dr. John Brown's election address unfortunatel reached us too late to be quoted in full. After settin out his reasons for standing for election, to which w gave publicity last week, Dr. Brown makes the following suggestions for the reconstitution of the Genera Medical Council:—

"The Medical Council Act of 1858 and the Medical Act o 1886 are hopelessly out of touch with the ideals of to-day The Medical Council is far too large and too costly. suggest very briefly the following: The number for th present should be reduced to 36, in fact 30 might be eve more effective. There should be 18 to be elected from th licensing bodies and 18 for England and Wales, Scotland and Ireland. England and Wales to have 12, Scotland

and Ireland 3. This would be fair in regard to population as a basis for proportional representation. In regard to the Direct Representatives the 18 should be equalised on the basis of population. Definite areas must be made so that there shall be opportunity for candidates to visit the electors."

In Dr. Brown's opinion the National Insurance Act must be very greatly altered, so that the Ideal Family Doctor be restored. The Medical Curriculum must be changed so that the Prevention of Disease shall be the "key-note," and the cure second. The 27 Universities' Colleges ought to be federated so that there shall be uniform standards of examination and of fitness for the profession. Dr. Brown heartily supports Sir George Newman's Memorandum on recent advances in medical education in England.

Obituary.

ALFRED JASPER ANDERSON, M.B. OXF., M.R.C.S. ENG., D.P.H. CAMB.,

MEDICAL OFFICER OF HEALTH FOR CAPE TOWN.

THE death is announced of Dr. A. J. Anderson, medical officer of health of Cape Town, a well-known South African medical man whose labours on behalf of a Public Health Act and the establishment of a Ministry of Health in South Africa, now an accomplished fact, no less than in the cause of child-life protection have been of wide service. Born at Manchester in 1858, he was educated at the Manchester Grammar School. At the University of Oxford he graduated M.B. in 1883, having in the previous year taken the M.R.C.S. Eng. A student at St. Bartholomew's Hospital, he afterwards visited the medical clinics of Leipzig and Vienna, and in 1888 obtained the D.P.H. Cambridge. From 1891 to 1901 he was medical officer of health for Blackpool; he then went to Cape Town to fill a similar office. He gave himself whole-heartedly to public health work, advocating as a foundation on which to build reforms, a department of public health for the Union, the passing of a Public Health Bill to codify existing Acts and Ordinances, the compulsory appointment of women health visitors, the establishment of large municipal infant welfare centres, and the teaching of domestic science and mothercraft to girls in schools. Although much still remains to be done, Dr. Anderson has been able to see vast improvements in the directions in which his foresight visualised the need. But Dr. Anderson's vision was not confined to the particular part of the Empire in which he exercised his calling, nor to any circumscribed division of public health and hygiene. In 1922, while in England, he contributed to the Section of Tropical Diseases of the Royal Society of Medicine a paper on dysentery in the British West Indies, in which he emphasised the need for encouragement and intelligent support by the Imperial Government, the importance of closer association between the insular medical services and the schools of tropical medicine in England, and for an extension of facilities to educate the rising colonial generation in preventive medicine. He specialised in the ætiology and treatment of tuberculosis, and was lecturer in hygiene in the South African College and a Fellow of the Royal Society of South Africa.

HENRY CARTER MACTIER, M.B., CH.B., B.A.O. DUB.

Dr. H. C. Mactier, hon. surgeon to the Wolverhampton Eye Infirmary, died recently at the early age of 52, after a medical record extending over 30 years in Wolverhampton, first as a general practitioner and later as an oculist. Five years ago he had a serious illness, undoubtedly precipitated by the excessive work he performed during the war and after the Armistice, and from this illness he never completely recovered. Dr. Mactier was educated at Trinity College, Dublin, where he graduated in medicine in 1894, and the following year was appointed house surgeon in the Wolverhampton and Midland Counties Eye Infirmary. In 1900 he was appointed honorary surgeon to the Wolverhampton and District Hospital for Women, and three years later became assistant surgeon to the Wolverhampton Eye Infirmary, with which he was connected, as honorary surgeon, at the time of his death. Among his other appointments Dr. Mactier acted as honorary ophthalmic surgeon to the Royal Orphanage, Wolverhampton, ophthalmic surgeon to the Bilston Education Committee, honorary surgeon to the Church Mission to the Deaf and Dumb in Staffordshire, and medical referee to various insurance societies. For his services in connexion with the war he was awarded the M.B.E. in 1920. For 27 years he was an active member of the British Medical Association, on the Council of which he served for eight years. Of his unsparing work in the interests of the profession as a whole, a colleague writes: "It came naturally to him to work rather for the common good and to sink his personal ambition in spending himself for the benefit of the profession. One wonders whether men of such ability and capacity in medico-legal work ought not to be withdrawn from the toils of practice and set apart as forensic specialists with adequate remuneration from the body medical." He wrote many papers on ophthalmological matters which were published in the medical journals. Dr. Mactier was one of the founders of the Wolverhampton Rugby Football Club and was himself a keen player. He was also an all-round cricketer and an original member of the local Tennis Club. He is survived by his widow, a son, and a daughter, to whom we extend our sympathies.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub.-Lts. to be Surg. Sub.-Lts.: R. Wear and R. Russell.

ROYAL ARMY MEDICAL CORPS.

Capt. L. R. Shore, half-pay list, late R.A.M.C., is ret. on account of ill-health caused by wounds.

Capt. J. H. C. Walker relinquishes the temp. rank of Maj. on ceasing to be empld. as a Dep. Asst. Dir. of Pathology.

TERRITORIAL FORCE.

Lt.-Col. G. L. Thornton to be Brevet Col.

Majs. A. L. Otway and C. M. Ingoldby are seconded for service under the Colonial Office.

Capt. R. W. Willcocks (late R.A.M.C.) to be Capt.

Lt. C. D. Walker to be Capt.

Lt. K. J. Franklin to be Lt.

ROYAL AIR FORCE.

G. J. Hanly is granted a short service commission as Flying Officer.

INDIAN MEDICAL SERVICE.

Col. H. J. K. Bamfield to be Maj.-Genl.

Ajab Singh Garewal, E. T. N. Trevor, and A. V. Lopes are permitted to retain the temp. rank of Capt., on admission to the Ind. Med. Service in the permanent rank of Lt.

Shankar Ramchandra Joglekar to be tempy. Lt.

DEATHS IN THE SERVICES.

Col. William Lewis Gray, C.M.G., A.M.S., who died at his residence, North Holt, Hythe, Kent, on Nov. 3rd, was the son of Dr. Alexander Gray, of Selby, and was born in 1864. Educated at the Universities of Glasgow and Edinburgh, he graduated in medicine and surgery at the former University in 1885, and proceeded to the B.Sc. in Public Health at Edinburgh three years later. He joined the medical department of the Army as surgeon in 1887, and was promoted to Major in 1889, when he served with the Anglo-Siamese Boundary Commission (1889–90). In 1895 he took part in the Chitral operations and received the medal and clasp, and from 1899 to 1901 he served in the South African campaign, when he was mentioned in despatches and was awarded the Queen's medal and four clasps. In 1911 he reached the rank of lieutenant-colonel. Col. Gray, who had been commanding officer of the Royal Herbert Hospital, Woolwich, and Examiner in Chemistry at the University of Malta, took part in the late war from the commencement till 1917, in which year he received the C.M.G. He was also mentioned in despatches. He leaves a widow to mourn her loss.

Medical News.

UNIVERSITY OF OXFORD.—At a recent Congregation the degree of B.M., B.Ch. was conferred on John Wenham Alden, Non-Coll.—The University has granted, by a Decree of Congregation, a sum of £3000 towards the expense of providing a joint lecture-room, library, and workshop for the departments of physiology and biochemistry.—Sydney G. F. Plant, B.Sc., M.A., D.Phil., Magdalen College, has been appointed to a University Lectureship in organic chemistry for two years, from Oct. 10th, 1924.

UNIVERSITY OF LONDON.—The Maudsley Hospital, Denmark Hill, S.E., treats nearly 1000 out-patients and nearly 400 voluntary in-patients per annum. The cases illustrate all types of neurosis and psychosis, though particularly recoverable forms and those in which mental symptoms are associated with organic disease in the nervous system or elsewhere. In addition the Maudsley Hospital can draw upon the mental hospitals of the County of London (containing nearly 20,000 cases) and therefore affords very special facilities for clinical study. The following opportunities for this are open to medical practitioners and students without charge: (*a*) A weekly discussion at 11.30 A.M. each Tuesday of cases in the hospital. (*b*) A monthly meeting at 4 P.M. on the last Friday in each month of the medical staff of the various mental hospitals of the County of London. At each meeting a group of cases from one hospital will be shown by its staff for discussion. (*c*) Attendance at the out-patient department at 2 P.M., on Mondays and Thursdays for male patients, Tuesdays and Fridays for female patients. Appointments as voluntary clinical assistants are open without fee to practitioners of both sexes specialising in psychological medicine. Such appointments can be either whole or part time, and to work in wards, out-patient department, or laboratories as desired. They may be held in conjunction with attendance at either part of the course for the Diploma in Psychological Medicine or apart from this. The appointment will satisfy the requirements of the examining bodies in respect of clinical experience of mental disorders, for the D.P.M., or for the M.D. in Psychological Medicine.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination held from Oct. 7th to Nov. 3rd the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—J. S. Aldridge, St. Bart.'s; M. M. Baird, Oxford and Guy's; Margaret A. Bannerman, Royal Free; W. D. Beck, Birmingham; Edith D. Bowie, King's Coll.; R. J. Brocklehurst, Oxford and St. Bart.'s; Margaret H. Brown, Charing Cross; Olive B. Buckley, King's Coll.; Margaret A. L. Buckner, Univ. Coll.; Margaret E. M. Carter, St. Mary's; A. F. Chalkley, Leeds; Irene E. Chandler, King's Coll.; G. Cheney, Harvard; Gladys M. Clarke, St. Mary's; H. A. Clegg, St. Bart.'s; H. A. Cole, Liverpool; L. N. R. Comty, London; Jean Cooper, Royal Free; J. Crowther, Manchester; J. Currie, St. Bart.'s; M. Cutner, St. Mary's; R. R. Dalling, Liverpool; J. T. Daly, Birmingham; J. R. A. Davies, St. Bart.'s; W. H. Davies, Westminster; Yolande M. de la Pasture, Bristol; T. A. J. M. Dodd, St. Bart.'s; D. C. Drake, Guy's; W. Egan, Charing Cross; Norah A. M. Empson, King's Coll.; Brenda H. English, Royal Free; G. R. Ford, Guy's; Gladys Goument, St. Mary's; G. Hamada, Birmingham; J. B. Hayes, Charing Cross; Marjorie F. M. Hayward, London; L. F. Henry, Liverpool; Freda K. Herbert, King's Coll.; J. R. B. Hern, Guy's; Minnie E. Hope, Royal Free; A. O. Jacob, Madras; C. James, Middlesex; Isabel E. S. James, King's Coll.; Kate D. James, St. Mary's; E. Jones, Guy's; B. Kornblum, Guy's; W. R. Kusel, St. Thomas's; C. K. Lakshmanan, St. Bart.'s; C. N. Latham, Birmingham; Helena M. J. McQuaid, St. Mary's; R. G. Maliphant and C. Marian, Univ. Coll.; A. Mead, St. Thomas's; M. L. Millard, Birmingham; Eileen S. Morris, Univ. Coll.; G. J. Morris, V. M. Morris, and A. M. Murray, Middlesex; G. W. Murray, Guy's; E. L. Newell, St. Thomas's; R. A. Newsom, King's Coll.; R. A. Norman and J. N. D. O'Rafferty, Guy's; Madeline P. Parker, Royal Free and St. Mary's; G. H. Pringle, Univ. Coll.; L. W. Proger, Middlesex; J. E. Readman, London; J. J. R. Robinson, St. Thomas's; H. Rogers, Bristol; Alysoun H. Rowntree, Royal Free; C. E. Sharp, McGill and Univ. Coll.; D. G. Shields, St. Bart.'s; Ruby O. Stern, Charing Cross; D. D. S. Stewart, King's Coll.; A. F. Taylor, St. Bart.'s; L. D. J. Telesphor, Univ. Coll.; Josephine I. Terry, St. Mary's; T. G. Tresidder, Guy's; E. A. Trim, St. Thomas's; Mary E. Tyars, Univ. Coll.; Joan W. Urwick, Charing Cross; Elizabeth M. Weideman, St. Mary's; D. G. Williams, King's Coll.; Emily A. C. Wilson, Charing Cross; N. Wilson, Univ. Coll.; and R. H. Yelf, King's Coll.

Surgery.—J. D. Allen, St. Bart.'s; D. Aserman, St. Thomas's; M. Bannounah, Guy's; T. F. Barlow, London; C. E. G. Beveridge, St. Bart.'s; V. H. Boobbyer and E. H. Boodrie, St. Mary's; D. De C. Boxill, Long Island Hosp. and St. Mary's; R. N. Brandwood, Guy's; M. K. Braybrooke, St. George's; D. J. Brims, St. Bart.'s; Stella M. Brown, King's Coll.; W. A. Browne, St. Mary's; the Hon. C. B. Buckley, St. Thomas's; H. H. Bullough, Manchester; W. H. Cameron, Middlesex; A. F. Chalkley, Leeds; J. H. T. Challis, London; G. Chambers, Leeds; Eileen A. Chennell, St. Mary's; W. E. Cheesman, St. Thomas's; J. E. Church, St. Bart.'s; L. C. Cook, St. Thomas's; A. S. Cox, Bristol; D. P. Crawford, St. Thomas's; Dorothy E. Crellin, Bristol; A. Davies, Middlesex; H. J. Davies, St. Mary's; R. K. Debenham, London; M. S. Dewhurst, Univ. Coll.; F. R. Dingle and R. A. M. Dyke, Guy's; R. G. Eastwood, Leeds; V. A. Edge, London; G. E. Ellis, St. Bart.'s; T. F. Everett, Middlesex; J. T. Fathi, London; V. L. Fisher, Guy's; C. S. Forrest, Manchester and Middlesex; D. B. Fraser, St. Bart.'s; J. H. Gibbens, St. Thomas's; O. P. Giles, Birmingham; J. Goldberg, London; R. T. Goodyear, Cambridge and Liverpool; D. L. Greig, Middlesex; J. M. Hall, King's Coll.; Constance I. Ham, Bristol; T. S. Hanlin, Manchester; A. W. Hanlon, Liverpool; W. D. Hasler, Middlesex; Irene D. F. C. Hastilow, Birmingham; N. H. R. Hatfield, St. Mary's; S. Helberg, London; A. Helmy, St. Thomas's; E. Herzberg, Heidelberg; A. R. Hill and H. F. Hiscocks, St. Bart.'s; E. F. Hottinger, St. Mary's; A. T. Howell, St. Thomas's; H. B. Howell, St. Bart.'s; O. R. Humphreys, London; D. J. C. Hutton, Middlesex; I. S. Jacobsz and M. E. M. Jago, Guy's; E. J. Jenkins, Birmingham; D. F. Johnstone and L. R. Jones, Guy's; B. Kaplansky, London; T. C. Kitching, St. Thomas's; Marjorie A. M. Lambert, Royal Free; H. Levy, St. Bart.'s; C. J. Lovering and A. C. MacLeod, Middlesex; C. T. Marshall, Manchester; G. C. Michael, London; F. C. Miller, Guy's; A. J. Moody, St. Bart.'s; C. F. Morrison, Guy's; R. H. Mortis, Charing Cross; I. S. Moscow, St. Bart.'s; K. V. N. Nair, London; R. G. Nethery and F. M. Newnham, Guy's; R. Paton, Middlesex; A. P. Pearce, London; A. D. Pegg, St. Thomas's; D. C. Prowse, Bristol; T. Rees, St. Bart.'s; J. T. C. Roberts, Liverpool; J. J. R. Robinson, St. Thomas's; Edith M. Ross-Johnson, Univ. Coll.; A. W. L. Row, St. Bart.'s; K. G. W. Saunders, A. de M. Severne, and E. M. Shackel, St. Thomas's; T. A. Shaw, Guy's; H. T. Simmons, Manchester; Sylvia M. T. Smith, Bristol; L. P. Spero, St. Mary's; I. P. Spurrell, Guy's; R. Stuart, St. Bart.'s; S. N. Taylor, Manchester; E. Thompson, St. Thomas's; P. G. Trafford, Guy's; Joan W. Urwick, Charing Cross; A. G. Walter, St. Thomas's; J. M. Wilder and C. R. Williams, London; C. L. Worthington and C. J. Wylde, Guy's; and Annie Yoffa, Cornell.

Midwifery.—D. A. Abernethy, St. Bart.'s; Agnes L. Adam, Royal Free; A. A. Anderson, Western Univ.; R. E. Artrick, Univ. Coll.; D. Aserman, St. Thomas's; H. M. H. Ashwin, Guy's; A. Ashworth, Liverpool; H. Y. Awad and H. M. Ayres, St. Thomas's; M. M. Baird, Oxford and Guy's; C. W. Bamford, London; Margaret A. Bannerman, Royal Free; A. K. Basilios, Birmingham; J. R. Beagley, St. Bart.'s; I. C. P. Beauchamp, Guy's; W. D. Beck, Birmingham; W. R. Bennett, St. Mary's; Elizabeth E. Benson, Bristol; R. H. Bestawros, Cairo; A. T. Bettinson and C. E. G. Beveridge, St. Bart.'s; G. W. R. Bishop, Bristol; C. P. Blacker, Oxford and Guy's; Kathleen Blake, King's Coll.; N. W. Bolton, Manchester; R. N. Brandwood, Guy's; H. F. Brewer, D. A. Brigg, R. J. Brocklehurst, and C. W. Brook, St. Bart.'s; O. W. B. Browning, Univ. Coll.; the Hon. C. B. Buckley, St. Thomas's; Margaret A. L. Buckner, Univ. Coll.; Mathilde E. F. Bugnion, London; Eleanor G. Burdett, St. Mary's; Mary E. Campbell, Charing Cross; De L. Carey, St. Mary's; Enid A. Ceiriog-Cadle, Royal Free; J. W. Clare, Birmingham; L. M. Clark, King's Coll.; Muriel G. E. Clark, Charing Cross; Ella J. Cockram, King's Coll.; S. M. Coleman, St. Bart.'s; L. N. R. Comty, London; C. P. Craggs, St. Bart.'s; D. P. Crawford, St. Thomas's; Celia M. M. Culver-Evans, Royal Free; C. I. Davies, London; H. G. Davies, Guy's; G. H. Day, St. Bart.'s; Hilda C. Dean, Charing Cross; J. V. Dockray, Middlesex; J. L. C. Doyle, St. Bart.'s; D. C. Drake, Guy's; J. Y. Eccles, St. Thomas's; E. A. R. Evans, Liverpool; L. Fatti, Univ. Coll.; A. K. J. Finch, St. Mary's; Barbara Finch, Royal Free; Winifrede M. Fish, King's Coll.; M. G. Fitzgerald, St. Bart.'s; R. G. Flower, Leeds; R. M. Forsayeth and C. W. E. Frederick, London; H. E. Gamlen, Durham; J. H. Gibbens, St. Thomas's; T. R. Goddard, Univ. Coll.; Catherine E. I. Greenshields and R. I. Greenshields, Liverpool; B. J. Griffiths, Cardiff; T. W. Griffiths and C. J. Grosch, Middlesex; A. Gross, St. Bart.'s; R. G. Hall, Charing Cross; Constance I. Ham, Bristol; G. T. Hankey, Guy's; L. F. A. Harrison, St. Bart.'s; J. R. B. Hern, Guy's; E. Herzberg, Heidelberg; A. B. Hewlett, King's Coll.; A. E. Hill, Guy's; C. H. Hilliard, St. George's; G. S. Hirst, Leeds; E. O. Hoermann, Birmingham; J. E. Howie, Liverpool; D. B. Hughes, London; J. Hughes, Bristol; J. P. Huins, Birmingham; Dorothea A. C. Hunt, Royal Free; S. Hyman, Leeds; F. F. Imianitoff and D. Imber, St. Bart.'s; G. J. Jack, Boston; C. James, Middlesex; C. W. Jones, King's Coll.; W. H. M. Jones, Cardiff; H. Kessel, Guy's; Rachel I. Kessel, Charing Cross; W. R. Kusel, St. Thomas's; D. M. Lang, Guy's; C. N. Latham, Birmingham; M. C. Lavin, London; E. D. Lawrence, St. George's; D. F. Lawson, St. Thomas's; H. E. Lewis, Guy's; D. A. Lubbock, Univ. Coll.; A. C. Lysaght, Guy's; C. B. McArthur, Royal Free; E. H. Mackenzie, St. Thomas's; D. H. MacLeod, Middlesex; H. P. R. Mavor, St. Thomas's; J. A. A. Mekelburg, Guy's; G. C. Michael, London; M. L. Millard, Birmingham; C. G. Millman, King's Coll.; J. G. Milner, St. Bart.'s; H. P. F. Modder, St. George's; E. F. Molony, St. Bart.'s; Mary A. Monro, Royal Free; G. C. Morris, St. Mary's; Eileen S. Morris, Univ. Coll.; W. G. R. Morris, Bristol; Marjorie Murrell, Royal Free; H. W. Nicholson, St. Thomas's; W. B. Norcott, Guy's; Maud Obbard, Royal Free; B. V. O'Connor, Middlesex; D. Oliver, St. George's; J. N. D. O'Rafferty, Guy's;

A. B. Osbourne, St. Mary's; C. H. Parker, London; G. Paterson, St. Thomas's; O. L. Prosser, Liverpool; F. W. F. Purcell, St. Thomas's; J. E. Readman, London; Nellie H. Reynolds, King's Coll.; E. W. Riches, Middlesex; M. V. Roberts, London; Victoria A. Roberts, Royal Free; L. G. Robertson, Bristol; A. E. Ross, St. Bart.'s; Edith M. Ross-Johnson and D. J. L. Routh, Univ. Coll.; N. L. Russell, St. George's; K. Samaan, Manchester; H. J. Satchwell, Bristol; H. H. E. Schulz and E. M. Shackel, St. Thomas's; J. W. Schollum, Guy's; J. Shutt, London; C. F. J. Smith, St, Mary's; A. W. E. Soysa, King's Coll.; B. L. Steele, A. L. Stephen, and Catherine E. Stephen, Univ. Coll.; J. M. Sterling and Ruby O. Stern, Charing Cross; P. Subbaramayya, Madras; Sylvia Sworn, Univ. Coll.; J. E. Swyer, London; J. G. S. Thomas, Guy's; J. L. Thomas, Middlesex; O. Tobin, London; E. J. F. Topham, St. Bart.'s; Mary E. Tyars and K. H. Uttley, Univ. Coll.; J. N. J. L. Uys, St. Thomas's; B. P. Vakil, Univ. Coll.; R. A. Walsh and L. B. Ward, St. Bart.'s; E. C. Warner, Guy's; W. B. Webster, St. Bart.'s; W. S. Whimster, Guy's; F. L. White and J. W. Whitney, London; D. O. Williams, St. Thomas's; E. J. Williams, Cardiff; G. O. Williams, Liverpool; T. I. Williams, Guy's; Emily A. C. Wilson, Charing Cross; H. G. Wimbush, Guy's; Ada R. Winter, Univ. Coll.; F. H. Woolley, Bristol; S. Wray, Manchester; H. C. Wykerd, London; C. J. Wylde, Guy's; and M. Yankelovitch, Middlesex.

Fellowship of Medicine and Post-Graduate Medical Association.—A four weeks' course starting on Nov. 24th will be given at the Royal Waterloo Hospital for Women and Children in medicine, surgery, and gynæcology. The programme has special reference to diseases of the blood, nervous system, heart diseases, feeding of infants, &c. During the first fortnight in December the following courses will take place: The Royal Northern Hospital, in conjunction with the Royal Chest Hospital, will hold an intensive course in medicine, surgery, and the special departments; at the Infants Hospital there will be a special course dealing with the study of infants from every aspect, and at the Hospital for Diseases of the Skin (Blackfriars) there will be a short course in dermatology, including venereal clinics. Copies of the syllabus of each of the above-mentioned courses may be obtained on application to the secretary to the Fellowship, 1, Wimpole-street, London, W. 1.

Medical Women's Federation.—The autumn meeting of the Council of this Federation took place at Plymouth on Oct. 31st and Nov. 1st, under the presidency of Miss Frances Ivens, M.S., President of the Federation. The business meetings were held in the Council Chamber of the Guildhall, and the members received a friendly greeting from the Mayor at their first meeting. Among the matters under consideration were reports from the local associations on salaries in public health appointments. In the discussion on these, emphasis was laid on the importance of three years' experience in candidates appointed to such posts. The following motion, to be sent to the Minister of Health, was passed:—

> That in the opinion of the Council of the Medical Women's Federation, the doctors to be appointed as assistant medical officers of health (school medical officer, infant welfare and pre-maternity medical officer, tuberculosis or venereal diseases medical officer) should have had at least three years' post-graduate experience—to include more especially work bearing upon the appointments for which application is made, such as diseases in children, obstetrics and gynæcology, the study of venereal diseases, &c.

The possibility of securing the appointment of a medical woman on the Board of Control was discussed. It was felt that this would be very desirable, as under the present circumstances there is no woman at all who visits the insane, the two lay women who are on the Board visiting the mentally defective only. It was resolved:—

> That a committee be appointed to prepare evidence regarding the need for a medical woman Commissioner on the Board of Control, and to take steps to submit such evidence to the Royal Commission on Lunacy, now sitting, together with a list of suitable candidates.

Reports from subcommittees of the Federation and from representatives on committees of the British Medical Association and other outside bodies were received and considered. The recent action of the London County Council in making a regulation that all their women medical officers must resign their posts on marriage without possibility of reappointment was reported and was much deplored. It was felt to be a severe blow dealt at the freedom of medical women to exercise their profession. The matter was referred to the Standing Committee for the Defence of Married Medical Women, for consideration as to future action. An interesting discussion arose on the answers to a questionnaire which had been sent out several months ago to most of the hospitals in this country in order to ascertain as far as possible (1) what hospitals have medical women on their staff and in what capacity; (2) in which hospitals are medical women eligible for staff appointments; and (3) what hospitals have women on their board of management. 581 circulars of inquiry had been sent out, and 423 replies had been received.

Mr. Neville Chamberlain, Minister of Health, has appointed Mr. Douglas Veale, of the Ministry of Health, to be his private secretary, and Mr. A. N. Rucker to be his assistant private secretary.

Dr. Walter Elliot has been reappointed to his old post of Parliamentary Under-Secretary for Health for Scotland.

The Chelsea Hospital for Women has received from the executors of the late W. B. Hextall a grant of £1000 towards the £20,000 required for the completion of the nurses' home and the opening of additional wards. £6500 is now urgently required.

The Need for Extended Sickness Insurance.—A paper on this subject will be read by Lord Dawson in the lecture theatre of the School of Oriental Studies, London Institution, Finsbury Circus, on Nov. 17th at 5.30 P.M., under the auspices of the Insurance Institute of London.

Tuberculosis Society.—An ordinary meeting of this society will be held on Friday, Nov. 21st, at 8 P.M., at the house of the Society of Medical Officers of Health, 1, Upper Montague-street, Russell-square, London, W.C., when Mr. C. Goulden will read a paper on Tuberculosis of the Eye.

Medical Officers of Schools Association.—The annual general meeting of this Association will be held at 11, Chandos-street, Cavendish-square, W., on Friday, Nov. 21st, at 5 P.M. (tea 4.30 P.M.), when Dr. L. R. Lempriere, the President, will read a paper on Preventive Hygiene in Public Schools Based on Twenty Years' Experience.

Royal Dental Hospital of London.—The staff of this hospital is holding its annual clinical "At Home" at the hospital, Leicester-square, W.C., on Saturday, Nov. 22nd, at 2 P.M. Cases of special clinical interest which have come under observation and treatment during the past year will be shown and demonstrations given. The various departments of the hospital will also be open for inspection. The medical committee extend an invitation to any medical practitioners who may like to attend. Tea will be provided.

Hunterian Society.—A meeting of this society will be held at the Cutlers' Hall, Warwick-lane, E.C., on Monday, Nov. 17th, at 8.45 P.M., when Mr. Justice Horridge and Sir William Willcox will open a discussion entitled the Medical Witness. It is hoped that the following will take part in the discussion: Sir Francis Newbolt, K.C., Sir Edward Marshall Hall, K.C., Sir Bernard Spilsbury, Mr. J. A. Cairns (magistrate, Thames police court), Mr. Freke Palmer, and Dr. Spurgin. Fellows are reminded that they may bring non-medical guests to this meeting.

London School of Hygiene and Tropical Medicine.—The Langley Memorial Prize has this year been awarded to Dr. P. S. Selwyn-Clark, M.C., D.P.H., of the West African Medical Service, for his monograph on Small-pox in the Negro and Negroid Tribes of British West Africa, with special reference to the Gold Coast Colony. The prize was founded by the friends of the late Dr. W. H. Langley, C.M.G., principal medical officer of Southern Nigeria, to commemorate his work, and this is the first year of award.

Royal Faculty of Physicians and Surgeons, Glasgow.—The annual meeting of the Faculty was held on Nov. 3rd, when the following office-bearers were appointed:

President: Dr. T. K. Monro. Visitor: Mr. J. H. Pringle. Treasurer: Dr. J. H. MacDonald. Hon. Librarian: Dr. E. H. L. Oliphant. Councillors: The President (ex-officio), the Visitor (ex-officio), the Treasurer (ex-officio), the Hon. Librarian (ex-officio), Dr. James A. Adams, representative to the General Medical Council (ex-officio), Mr. J. Mason Noble, Dr. W. G. Dun, Dr. A. Freeland Fergus, Dr. J. M. Munro Kerr, Mr. Thomas Kay, Mr. R. M. Buchanan, Dr. G. H. Edington, Dr. John Henderson, Dr. H. L. G. Leask, and Mr. R. Barclay Ness.

Society of Members of the Royal College of Surgeons of England.—The society announces that the following resolution will be moved on Nov. 20th at the annual general meeting of the Fellows and Members of the Royal College of Surgeons of England, to be held at the College, Lincoln's Inn-fields, London, W.C., at 3 P.M.:—

> "That this Thirty-seventh Annual Meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College; moreover, this meeting requests that the President shall hereupon reply in detail to the two resolutions passed at the last annual meeting, and that he shall also state whether his Council has seriously considered any means whatever whereby the collective views of Members of the College may be ascertained on matters affecting their interests as Members."

This resolution will be moved by Dr. W. E. A. Worley and seconded by Dr. M. I. Finucane.

At a meeting of the Royal Geographical Society on Nov. 10th, Major R. W. G. Hingston, I.M.S., speaking of the possibilities of reaching the summit of Mount Everest, expressed his own conviction that though the physiological difficulties were severe, they could be overcome.

South African Institute for Medical Research.—The executors in the estate of the late Mr. A. W. Bannerman, of Johannesburg, have donated a sum of £1000 to this institute to be utilised in the prosecution of some line of medical research, having as its aim the improvement of the welfare of the native races of South Africa.

East India Association.—A meeting of this association will be held on Monday, Nov. 17th, at 3.30 P.M., at the Caxton Hall, Westminster, S.W. 1, when Major-General Sir Gerald Giffard, I.M.S. (retd.), will read a paper entitled "Some Aspects of the Future of Medicine in India." Surgeon-General Sir R. Havelock Charles, I.M.S. (retd.) will preside. Discussion is invited.

Royal Institute of Public Health.—The Harben lectures, which were to have been given on Nov. 24th, 25th, and 27th, by Prof. Edgar L. Collis, Talbot Professor of Preventive Medicine, University of Wales, on Phthisis and Industrialism (National and Occupational), with Reference to other Infectious Diseases, have unavoidably been postponed.—The next congress of the Royal Institute of Public Health, on the joint invitation of the corporations of Brighton and Hove, will be held in those boroughs from Wednesday, May 27th, to Monday, June 1st, 1925 (Whitsuntide).

Royal Commission on National Health Insurance.—The fifth meeting of this Commission was held at the Home Office, Whitehall, on Nov. 6th, Lord Lawrence of Kingsgate being in the chair. Mr. L. G. Brock, assistant secretary, and Dr. Smith Whitaker, senior medical officer, both of the Ministry of Health, were examined further on a variety of matters relating to the administration of medical benefit—e.g., the conditions of service for insurance practitioners, the supply of drugs and appliances, the various medical funds, the scale of payment for medical services and drugs, the method of selection of doctors by insured persons, the mileage payments, &c. The Commission announce that the oral evidence given at the meeting of Oct. 23rd, 1924, is now on sale in proof form (1*s.* 6*d.*) at H.M. Stationery Office, Kingsway, London, W.C. 2.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, W.
Thursday, Nov. 20th.—At 4.30 P.M.
Papers.—J. Barcroft, M. L. Anson, A. E. Mirsley, and S. Oinuma: The Correlation between the Spectra of Various Hæmoglobins and their Relative Affinities for Oxygen and Carbon Monoxide. H. R. Hewer: On Certain Abnormalities occurring in the Pituitary of the Frog. (Communicated by Prof. E. W. MacBride.)
Papers to be read in title only.—A. Howard: The Effect of Grass on Trees. (Communicated by Sir John Russell.) J. W. Pickering and F. E. Taylor: Blood Coagulation, Anti-Coagulants and Hæmolysis. (Communicated by Prof. W. D. Halliburton.) R. J. Ludford: The Distribution of the Cytoplasmic Organs in Transplantable Tumour Cells: with special reference to Dictyokinesis. (Communicated by Prof. J. P. Hill.) E. Ponder: On the Balloon-like Structure of the Mammalian Erythrocyte. (Communicated by Sir E. Sharpey Schafer.) V. B. Wigglesworth: Uric Acid in the Pieridæ; a Quantitative Study. (Communicated by Prof. F. G. Hopkins.) G. Lindsay Johnson: Contributions to the Comparative Anatomy of the Reptilian and the Amphibian Eye, chiefly Based on Ophthalmological Examination. (Communicated by Dr. H. Gadow.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 18th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.

PATHOLOGY: at 8.30 P.M.
T. Lumsden: Observations on Cancer Cells in vitro.
J. A. Murray: Hypersensibility of the Tissues to Cancer.
A. Fleming: The Effect of Various Chemicals on the Leucocytes.

Wednesday, Nov. 19th.

HISTORY OF MEDICINE.
No Meeting of the Section will be held on Wednesday, Nov. 19th, but the President and Council of the Medical Society of London have invited the Members of the Section to attend the "Lloyd Roberts Lecture," which will be given on Nov. 19th at 5 P.M., at the House of the Medical Society, 11, Chandos-street, W. 1, by Dr. Herbert Spencer on "The Renaissance of Midwifery."

Thursday, Nov. 20th.

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases:
Dr. H. C. Samuel: Case for Diagnosis.
Dr. H. W. Barber: Multiple Sarcoid with Lupus Vulgaris.

Friday, Nov. 21st.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Paper:
Dr. Rist (of Paris): The Respiratory Displacements of the Mediastinum and some Allied Phenomena.

MEDICINE.
Members of the Section of Medicine are specially invited to attend this Meeting.

THE MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
Wednesday, Nov. 19th.—5 P.M., Dr. Herbert R. Spencer: The Renaissance of Midwifery. (Lloyd Roberts Lecture.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.
Thursday, Nov. 20th.—8.15 P.M. (At the London School of Hygiene and Tropical Medicine, Endsleigh-gardens, Euston-road.) A laboratory meeting, and demonstrations by Major E. E. Austen, Drs. W. Broughton-Alcock, H. B. Day, Captain W. H. Dye, Drs. Drbohlav, H. M. Hanschell, W. E. Haworth, Colonel S. P. James, Colonel Clayton Lane, Mr. Ll. Lloyd, Drs. Manson-Bahr, Colonel Marrian Perry, Drs. J. Harvey Pirrie, H. H. Scott, Surg.-Commander T. B. Shaw, and Mr. A. L. Sheather.

THE TUBERCULOSIS SOCIETY, 1, Upper Montague-street, Russell-square, W.C.
Friday, Nov. 21st.—8 P.M., Mr. Charles Goulden: Tuberculosis of the Eye.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
Monday, Nov. 17th, to Saturday, Nov. 22nd.—West Lecture Hall, Royal Society of Medicine, 1, Wimpole-street. Lectures arranged by the Fellowship of Medicine and open to all members of the profession. At 5.30 P.M., Mon., 17th, Mr. Cyril A. R. Nitch: Cancer of the Intestine. Wed., 19th, Mr. W. Sampson Handley: Cancer of the Breast. Fri., 21st, Mr. H. S. Souttar: Carcinoma of the Œsophagus.—St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. Daily demonstrations, pathological demonstrations, and lectures on Tuesday and Thursday by Dr. A. Whitfield. Third week.—St. Mark's Hospital for Diseases of the Rectum, City-road, E.C. Special Intensive Course in Proctology, including lectures, demonstrations, and operations. Second week.—Chelsea Hospital for Women, Arthur-street, S.W. Special Course in Gynæcology, consisting of lectures, demonstrations, and operations. First session on Friday, the 21st, at 2 P.M., lecture by Mr. Comyns Berkeley, operations, and demonstration.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
Monday, Nov. 17th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.
Tuesday.—10 A.M., Medical Registrar: Clinical Methods. 11 A.M., Dr. McDougal: Medical Electricity. 12 noon, Dr. Burrell: Chest Cases.
Wednesday.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
Thursday.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simpson: Gynæcological Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
Friday.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Tuesday, Nov. 18th.—4.30 P.M., Mr. E. S. Pierrepont: Pyorrhœa and Related Conditions.
Friday.—4.30 P.M., Dr. J. B. Alexander: Mediastinal Affections, their Diagnosis, Prognosis, and Treatment.
Daily: Medical and Surgical Clinics and Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 20th.—4 P.M., Dr. Robert Hutchinson: Convulsive Disorders in Infancy and Childhood.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.
TUESDAY, Nov. 18th.—5 P.M., Dr. A. Whitfield: Diseases due to Fungi.
THURSDAY.—5 P.M., Dr. A. Whitfield: Diseases due to Fungi.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
MONDAY, Nov. 17th.—(At the Shaw-street Hospital.) Dr. Willett: Dysmenorrhœa.
TUESDAY.—(At the Maternity Hospital.) Miss Ivens: Induction of Premature Labour.
WEDNESDAY.—(At the St. Paul's Eye Hospital.) Mr. H. Haward Bywater: Methods of Eye Examination.
THURSDAY.—(At the St. George's Hospital.) Dr. F. H. Barendt: Skin Cases.
FRIDAY.—(At the Eye and Ear Infirmary.) Dr. E. Stevenson: Eye Injuries and their Treatment.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, Nov. 18th.—4.15 P.M., Mr. F. H. Westmacott: Deafness, Curable and Incurable.
FRIDAY.—4.15 P.M., Mr. A. H. Burgess: Some Points in the Surgery of the Biliary Tract.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)
TUESDAY, Nov. 18th.—(At the Royal Infirmary.) Mr. Pooley: The Ocular Causes of Headache.
FRIDAY.—(At the Children's Hospital.) Mr. P. Reckless: Cervical Adenitis.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.
WEDNESDAY, Nov. 19th.—3.15 P.M. (at the Town Club, Swindon), Mr. L. E. Claremont: Care and Treatment of Children's Mouths.

THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.
TUESDAY, Nov. 18th.—4 P.M., Prof. Herring: The Physiology of the Kidney (continued).

CHADWICK PUBLIC LECTURES.
WEDNESDAY, Nov. 19th.—8 P.M. (at the Royal Institute of British Architects, 9, Conduit-street, W. 1), Prof. J. B. Cohen: Smoke: Cause, Nature, Effects and Methods of Prevention.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.
(Course of Lectures on the Health of the Commonwealth.)
WEDNESDAY, Nov. 19th.—4 P.M., Prof. Louise McIlroy: The Influence of Antenatal Care upon Infant Welfare and Mortality.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.
(At the Medical Society of London, 11, Chandos-street, W.)
MONDAY, Nov. 17th.—6 P.M., Sir Robert Armstrong Jones: Fatigue and Sleep.

Appointments.

CATHCART, W. B., M.B., B.Ch. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Swaffham District of the County of Norfolk.

CLAUSEN, R. J., M.B., B.S. Lond., Anæsthetist to the Queen's Hospital for Children, Hackney-road.

MAINGOT, RODNEY, F.R.C.S. Eng., Surgeon with Charge of Out-patients, Royal Waterloo Hospital for Children and Women.

SHINNIE, A. J., M.D. Aberd., D.P.H., Medical Officer of Health for the City of Westminster.

THOMSON, J., M.B., Ch.B., M.R.C.P. Edin., Assistant Physician, Department Diseases of Children, Dundee Royal Infirmary.

Edinburgh Royal Infirmary: WIGHTMAN, A. R., M.B., Ch.B., BRODIE, P. M., F.R.C.S.E., MORRIS, G., M.B., Ch.B., SMITH, G. L. M., M.B., M.R.C.P.E., TODD, T. R. R., M.B., M.R.C.P.E., LOUDON, —, M.B., Ch.B., STRACHAN, —, M.B., Ch.B., MATHESON, A. R., M.B., M.R.C.P., HOULTAIN, W. F. T., M.C., F.R.C.S. Edin., MILLER, D., M.D., F.R.C.S.E., GRAHAM, —, F.R.C.S. Edin., SCOTT, —, M.B., Ch.B., BATCHELOR, R. C. L., F.R.C.S., LISTON, MARY F., M.B., Ch.B., Clinical Tutors and Senior Clinical Assistants. HERDMAN, DOROTHY P., M.B., Ch.B., DAVIES, H. W., M.B., Ch.B., GILCHRIST, A. R., M.B., Ch.B., ILLINGWORTH, C. F. W., M.B., Ch.B., SHEARER, D. A. M'M., M.B., Ch.B., STARKEY, —, M.B., Ch.B., M'LACHLAN, E. A. W., M.B., Ch.B., Clinical Assistants.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary, &c.—H.S. £200.
Bristol General Hospital.—Hon. Reg. to Throat and Nose Dept.
Cambridge, Addenbrooke's Hospital.—H.S. at rate of £130.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Anæsthetist. £50.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P. Two H.S.'s and Obstet. Asst. at rate of £50 each. Also Asst. S.
Evelina Hospital for Children, Southwark, S.E.—H.S. at rate of £120.
Hackney Union Infirmary.—Jun. Asst. M.O. £350.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. S.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each £50.
London Royal Free Hospital School of Medicine for Women, Hunter-street, Brunswick-square, W.C.—Third Asst. in Obstet. and Gynæcol. Dept. £270.
Manchester Royal Infirmary.—Res. M.O. £260.
Manchester, St. Mary's Hospitals.—Three H.S.'s for seven months at rate of £50.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W. Asst. S. and Clin. Assts.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. £100. Also Asst. Cas. O. at rate of £100.
Miller General Hospital, Greenwich-road, S.E.—Res. Cas. O. £150.
Nottinghamshire County.—M.O.H. £1200.
Oxford County and City Mental Hospital, Littlemore, near Oxford.—Second Asst. M.O. £350.
Richmond, Surrey Royal Hospital.—Asst. H.S. £100.
Rochester, St. Bartholomew's Hospital.—H.P. at rate of £200.
Rousay and Egilshay Parish, Orkney.—R.M.O. £400.
Royal College of Surgeons of England.—Election to Court of Examiners.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £150. Cas. O. £100. Asst. Cas. O., Obstet. Asst., Obstet. H.S. Also H.P. and H.S. All £50.
St. Bartholomew's Medical College, E.C.—Demonstrator of Physiology.
Salford Royal Hospital.—Res. Surg. O. £200.
Sheffield, Jessop Hospital for Women.—Sen. Res. M.O. £250. Also two Asst. H.S.'s at rate of £100.
Somerset County Council, Quantock Lodge Tuberculosis Sanatorium.—Res. Med. Supt. £739 12s.
Truro, Royal Cornwall Infirmary.—H.S. £170.
Virol Scholarship in Hæmatology. £200.
West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Asst. P., Laryngologist. Also Otologist.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Non.-Res. H.S. at rate of £150.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.
York County Hospital.—H.P. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Lancaster, Lancs; Eastwood, Notts; Heanor, Derby; Hawarden, Flint.

Births, Marriages, and Deaths.

BIRTHS.

BROOME.—On Nov. 6th, at Port View, Seaview, I.W., the wife of Dr. F. C. Sedgwick Broome, of a son.

KEMP.—On Nov. 6th, to Dr. and Mrs. P. Rowland Kemp, of 62, Leytonstone-road, E. 15.—a son.

MURPHY.—On Oct. 7th, at Rawalpindi, the wife of Major L. Murphy, R.A.M.C., of a daughter.

MARRIAGES.

KNAPP—SHAW.—On Nov. 5th, at the Royal Chapel of the Savoy, Lieut.-Colonel H. H. G. Knapp, M.A., M.D., I.M.S., to Mabel Enid, only daughter of the late A. G. Shaw, and of Mrs. Shaw, of Bournemouth West.

LOW—RAWSON.—On Nov. 1st, at St. Stephen's, Vincent-square, Harold Low, M.B., of Evelyn-gardens, to Annie Rawson, of Vincent-square.

DEATHS.

DOWNES.—On Friday, Nov. 7th, 1924, Thomas William Hardwicke Downes, M.R.C.S. Eng., L.R.C.P. Lond., of Ludlow, Shropshire, aged 49.

HELLIER.—On Nov. 8th, 1924, at 5, Bank View, Stainbeck-lane, Leeds, John Benjamin Hellier, M.D., aged 71.

LAMPORT.—On Oct. 30th, at Lancaster, Henry Christopher Lamport, M.B., C.M., in his 63rd year.

MOSS.—At Imerimandroso, Madagascar, on Nov. 1st., C. F. Arrowsmith Moss, M.D. Edin., aged 59 years.

NORTH.—On Oct. 31st, at sea, on board the s.s. *Leicestershire*, of which he was surgeon, as the result of war wounds, Thomas Stanley North, M.B., B.S. Lond., F.R.C.S. Eng., aged 27, eldest son of Thomas North, F.R.C.S.I., of New Southgate and 28, Welbeck-street, W. 1.

TATHAM.—On Nov. 8th, at the White House, Oxted, Surrey, John Francis Walkingame Tatham, M.A., M.D., in his 81st year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2	2	0
	Six Months	1	1	0
	Three Months	0	10	6
ABROAD	One Year	2	10	0
	Six Months	1	5	0
	Three Months	0	12	6

Notes, Comments, and Abstracts.

JAMAICA AS A HEALTH-RESORT.

BY JOSEPH GEOGHEGAN, M.D. EDIN., F.R.C.S. EDIN.,
KINGSTON, JAMAICA,
LATE SURGICAL SPECIALIST, ULSTER DISTRICT, R.A.M.C.;
SURGICAL SPECIALIST, MINISTRY OF PENSIONS,
ULSTER REGION.

DESPITE historic precedent set by Ponce de Leon, the West Indian Islands have been little used as health resorts. Yet for this purpose certain of them possess decided qualities to attract and benefit the invalid, and they adduce in addition possible avenues for a very pleasant holiday. Amongst them none present a more gracious aspect than Jamaica. As it is distant but 17½° from the equator, the general climatic conditions of Jamaica are consequently those of its geographical position, but they are favourably modified in certain directions.

Lying in the midst of the Caribbean Sea, the island is surrounded by a wide belt of water, and the unequally altering thermal properties of these elements set up constantly interchanging currents of air. Thus a temperature by day otherwise tropical is mitigated and relieved by a steady breeze which blows from the sea all the year round, and the nights are refreshed by the deliciously cool land breeze coming down from the hills which form the backbone of the island. These mountains, rising sharply from the coast, run in irregular ridges from west to east, rising to heights of over 7000 feet. It is from those altitudes that the land breeze comes with such effect as to admit of a diurnal variation in temperature of some 15° or 16° F.; so marked and so sudden is the evening fall of the thermometer that it is considered wise to adopt precaution against chill, particularly after exercise.

Jamaica's Two Climates.

The curiously broken configuration, aptly caught by Columbus when he crumpled up a piece of paper to represent the island, is one of the main causes of the singular and striking beauty of Jamaican scenery, and in addition endows it with virtually two climates. There is the coastal climate, more attractive along the picturesque north side, where the trade wind coming off the sea is locally known as the "doctor," and there is the hill climate. The former is warmer, soothing and relaxing; drier, more equable, and heavily ozone-laden. The hill resorts, from 2000 to 3000 feet in altitude, are more bracing with their lower thermal range, lower barometric pressure, and stronger breezes. Both regions have their advantages and provide in alternation pleasant and health-giving variety.

The heat of the tropic sun is further tempered by the humidity of the air, which is high, consequent on the large neighbouring areas of water. The mean figure is 78 for the winter months, but due allowance being made for local variation the climate is not damp. The rainy seasons of October and April are sharp, but the rest of the year is distinguished by constant bright sunny weather of a regularity as welcome as it is novel after the vagaries of the English climate.

The geological surface composition of Jamaica is very largely a white limestone, whose porous, absorptive nature, despite the many streams from which the island derives its name,[1] constitutes the advantages of a dry, well-drained soil, and assists in maintaining this balmy, agreeable, and altogether charming climate. More conjectural but none the less helpful adjuvants are the extreme purity of the air and the intensity of the light. The scope of heliotherapy is too uncertain to permit of dogmatic precision, but of the physical and psychical benefit of the cheerful conditions of clear pure air and bright constant sunlight there can be no doubt. The mean temperature for the winter months, November to March inclusive, is in Kingston 76·5° F. The capital is, however, from its position on the south side, away from the breezy benefit of the trades, one of the hottest places in the island; the corresponding figure for some of the favourite hill resorts is some 8° or 10° lower.

Contrast with certain non-tropical resorts may clarify the salient points. Nice, with a proverbially mild climate, has a mean winter temperature of 49°. Madeira, which, like Jamaica, is also favourably affected by its geographical situation and structure, has a mean humidity of 75, and a mean annual temperature of 65°. The mean temperature in Cairo for January is 53°, Egypt generally being favoured by the famous "Etesian" wind and having a singularly dry climate (the mean humidity at Wadi Halfa is only 32).

The subtle metabolic variation induced by a change of climate has long been known empirically to react favourably on conditions of ill-health. Many states of delicate health, delayed convalescence, general breakdown, anæmia, tardy recovery from operation, &c., will be materially improved by any attractive holiday, be it Egypt, Nice, Madeira, or Jamaica, a reasonable allowance for the personal equation being alone required. There are, on the other hand, a numerous series of diseases whose optimum climate is a matter of care, consideration, and forethought.

The Virtues of the Island.

The leading features of the Jamaican climate as briefly indicated above will, no doubt, readily suggest its utility as a health resort. Certain affections show a singularly satisfactory response; they fall naturally into groups. For that group which comprises cardiac, vascular, or renal defects, the warmer sea coast with its high excess of ozone is more suitable. The alleviation of distressing symptoms obtained by even a short residence is surprising, and is only partly due to the absence of exposure to chill or to unnecessary variation in surrounding temperatures. The better distribution of the circulation, due to peripheral vascular relaxation and dilatation consequent on the warm atmosphere, not only relieves the kidneys by increasing skin excretion, but directly affects arterial tension.

It is curious to notice that Hans Sloan, M.D., "Body-Physician to the Duke of Albemarle," remarked some 200 years ago[2] on this same point, referring to the beneficial effects of the climate of Jamaica on plethoric, sanguine individuals, by which he undoubtedly intended those conditions covered to-day by the term "blood pressure." This observer further noted, with indubitable truth, a distinct prolongation of life in aged Europeans, and their decidedly greater vitality both of body and mind, their increased muscular and nervous capacity.

This warm marine climate is further well adapted for rheumatic troubles—arthritic or muscular—assisted, if necessary, by one or other of the mineral baths. The hill resorts presenting a mountain climate of a cool, keen, invigorating nature, possess great advantages for certain diseases of the respiratory tract. Those of the dry catarrhal type find residence here very suitable, but it is not recommended for cases of a moist, exudative nature, nor for pulmonary tuberculosis. Further experience but confirms an opinion already indicated as to this last disease in the tropics.[3] The bracing effect of the preliminary sea voyage, most of which is spent in warm weather, must not be overlooked. A condition which often favourably responds to residence in the island is insomnia. I am quite unable to account for the soporific effect of the climate, but have been notably impressed.

It may not be out of place to refer to a curious fact, that the normal differential count of the individual here shows a relative lymphocytosis at the expense of the polymorphs the percentage of each being much closer than at home. Discussion of the causation of this change is irrelevant. The novel surroundings, the rich and varied diet, predominantly vegetarian, and the social amenities of a hospitable island coöperate with the physical change by affording the distractions always necessary in delicate or debilitated conditions, but particularly of aid when there is any nervous element.

Mineral Springs.

Jamaica is further fortunate in possessing two valuable mineral springs, though neither is yet developed as hydropathic establishment to that extent which it is hoped the future will provide. Their admirable qualities are much used locally. Bath is hot (128° F.), sulphurous, and non-purgative; its advantages lie in the treatment of neuritic and arthritic conditions, or cutaneous lesions. The other at Milk River, is warm, saline, and purgative, and is also highly radio-active. It can be strongly recommended for the disturbed metabolism arising from auto-intoxications for gout, rheumatism, cirrhosis, and the like.

Almost any part of the island can be reached by a series of excellent motoring roads. The various sports, tennis golf, fishing, shooting, polo, cricket and football, are all popular local pastimes. Our insular attachment to certain foreign climes might with wisdom be subordinated to the welfare of the undeveloped resources of the Empire. It is hoped, therefore, that patriotism will stimulate, as self interest would urge, the greater exploitation of the charm of the Queen of the Antilles.

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[1] Arawak—Xaymaca = Land of rivers.

[2] A Natural History of Jamaica. By Sir Hans Sloan, Bart Printed in London by B. M. for the author. In two volumes 1707 and 1721.

[3] Geoghegan: Tuberculosis from a West Indian Standpoint THE LANCET, 1919, ii., p. 56.

SOME PROBLEMS OF ASSURANCE MEDICAL PRACTICE.

IN his able and very comprehensive presidential address to the Assurance Medical Society on Nov. 5th Dr. G. Grahamsley Howitt referred to some problems raised by modern laboratory methods of investigation and by the experience of conditions originating during recent war service. Of these the most urgent and practical was that of the significance of glycosuria and its relation to true diabetes mellitus on the one hand, and to less serious disturbances of metabolism on the other.

Glycosuria as the Only Symptom.

Speaking from the standpoint of the examiner for life assurance Dr. Howitt said: "Assurance practitioners so often get the beginnings of diseases, slight signs only, and so very rarely typical text-book cases. Glycosuria, for example, is often found with no other signs or symptoms. It may be possible to get a blood-sugar test done—I have had a number of cases now—and so clear up the question whether the glycosuria indicates the beginning of the diabetes or not, and also determine whether there is some other reducing substance or not. But here again we have a new problem, for the case may turn out to be one of the kind which has almost as many names as has the albuminuria of adolescents—renal glycosuria, renal diabetes (there is no diabetes), negligible glycosuria, diabetes innocens. Dr. George Graham speaks of these as 'patients who excrete dextrose, but do not suffer from diabetes mellitus.' They give normal results to the blood-sugar test, they excrete sugar in the urine, but the level of the blood-sugar is normal or below normal. 'They feel unwell if dieted at all strictly.' At any rate, if renal glycosuria is suspected, somewhat elaborate tests by diet and examination of the urine are required to make sure.

"This necessary procedure negatives its employment in life assurance, except in very rare and exceptional cases, but one may be called upon to deal with them in cases where a man for his own sake has undergone these elaborate tests. Graham remarks: 'The disease as an entity is a new one,' and 'the cases having been only fully worked out since 1916.' They seem to be very limited in number. So far as I can judge, if one does come across a case under the circumstances I have mentioned, it could possibly only be dealt with at present on the lines of a heart case in good condition, with an adequate addition or on special terms. Possibly now that the condition has been investigated, more will be heard of it. The subjects do not seem to do well in hot climates.

"There still seems some difference of opinion about this defect. Marsh says: 'Most cases recorded are really cases of ordinary diabetes'; however, this was in 1921 and things march rapidly at the present time. For myself I feel inclined to seek safety in caution and to treat them as in diabetes unless a differential diagnosis can be worked out.

"Speaking of diabetes, one cannot help wondering whether in time there will not arise cases in which, by modern treatment of diet and insulin, the cells of the islands of Langerhans will be sufficiently restored to function as to enable the patient to do without treatment. That, of course, can hardly happen for some time yet, but it seems possible. Later on we may have them coming up for examination."

After-effects of Gassing.

Dr. Howitt then went on to the after-effects of gassing and to the problems of prognosis in those who had undergone it. "Cases still keep presenting themselves, and will continue to do so, I suppose. There is a good deal of literature on the subject, but little guidance as to what to expect in the future. An enormous amount of experimental work was done during the war, particularly in the U.S.A. by Warthin and Weller, and Winternitz. Winternitz expresses the opinion, as the result of his experiments on dogs, that 'a soldier who has recovered from the acute effects of gassing should be regarded as an individual with damaged lungs.' A later opinion by Arthur F. Hurst is to the effect that a considerable time elapses before complete restoration to health occurs, and it is still doubtful whether a greater or less degree of permanent incapacity may not sometimes follow. These were opinions based on the more or less immediate effects, and apply to pulmonary irritants.

"One may dismiss those cases where the effects were so slight as to be only temporary and those who were so seriously damaged as to become permanent invalids. The immediate effects were to produce an inflammatory and sometimes destructive condition of the respiratory organs, the extent of which varied according to the type of gas and the amount inspired.

"It appears that the fear that pulmonary tuberculosis would be a common result has not been realised, but perhaps the time is yet early to come to a definite conclusion. Raymond and Guilham, taking 162 cases, found only two cases of 'true pulmonary tuberculosis,' but 27 of recurrent simple bronchitis and 31 with emphysema in addition. They are of the opinion that 'the development of actual pulmonary tuberculosis after gassing is extremely rare.' This is borne out by Dr. T. E. Sandall in an investigation of the record cards of 83 pensioners. He found 46 per cent. with evidence of emphysema or chronic bronchitis or both, so that 'the popular impression that pulmonary tuberculosis is a frequent sequela is not borne out'; but if recovery does not take place at an early stage, the later effects, if not permanent, are at any rate of long duration. Tachycardia is found in 45 per cent. Thompson Campbell describes two pathological conditions—bronchitis with absence of dullness on percussion, no increase of V.R. or vocal fremitus with harsh or puerile respiratory murmur, prolonged respiration, coarse rhonchi and small muco-crepitant râles, if the bronchioles or alveoli are involved. The other condition is a sclerosis or slight fibrosis with diminution of percussion over the lobe, deficient air entry, harsh and puerile respiratory murmur, without increased tactile vocal fremitus or V.R. as in tuberculous consolidation. The pulse-rate is not accelerated, the temperature does not suggest tubercle, and there is wasting and debility. Shortness of breath is greater than would exist with a T.B. lesion of limited extent.

American Experience.

"Hermon Harrison Cole, in U.S.A., says the 'pathological changes are usually found toward the central and lower parts of the chest rather than the apices.' . . . There is a general and steady tendency toward recovery with decrease of physical disturbance. . . . War gassing has little to do with the development of late pulmonary tuberculosis. . . . In gassed patients, who later develop tuberculosis, it usually runs a less severe course with less tendency to serious complication than non-gassed patients. . . . The differential diagnosis from pulmonary tuberculosis is becoming more satisfactory, through recognition of rather dependable diagnostic points: of which temperature, progressive loss of weight, tendency to hæmorrhage, are most important. . . . In no single case from gas alone has a history of large hæmorrhage been given. . . . The ultimate outlook of gassed patients with or without tuberculosis is far from settled. The effect of gassing on life expectancy can be determined only by further experience.'

"This latter seems the general opinion and the inferences which may be drawn from these experiences are—that tuberculosis is not a usual sequel of gassing; that it may be necessary to make a differential diagnosis between pulmonary tuberculosis and the results of gassing; that the common results which may persist are chronic bronchitis and emphysema, a sclerosis or fibrosis, and that there is a general and steady tendency to recovery. Personally I have seen a goodly number of people who have been gassed, but all seemed to have recovered, showing no physical signs, or at most giving only a history of having an occasional cough. In only one did I find a patch over the middle lobe on the right side where there was somewhat harsh breathing. I could not satisfy myself that there was any alteration of the percussion note. The man had sometimes a morning cough, but played a good deal of tennis, took a lot of other exercise, and looked fit. He had been examined a year or two before, and was then said to have shown signs of bronchitis and emphysema. I felt inclined to take him on an Endowment Assurance with an extra."

WAR ON PESTS.

A VIGOROUS war on pests was declared on Friday, Nov. 7th, at the annual dinner of the recently incorporated College of Pestology (Bedford-square), held at Pagani's Restaurant, the pests particularly singled out for attack being the rat, the house-fly, the cockroach, the tsetse, the bilharzia, the death-watch beetle, the grey squirrel, the sparrow, and the mosquito, Col. Cuthbert James, M.P., Chairman of the College, presiding. Sir James Crichton-Browne insisted that the College must concentrate on the rat, which, despite every effort, was as aggressive as ever. Until recently, he said, the only use of the rat had been the skin, but modern science was now employing the white rat as a sort of living test-tube for feeding experiments. At the present moment, he remarked, the Hanoverian rat was making its way in huge contingents from the country to its winter quarters in London, while its alleged function as a scavenger was completely exploded. The mosquito, he pointed out, was a permanent menace to mankind wherever it existed. In spite of all the precautions taken two ships had recently arrived in British ports heavily stricken by malaria and affording an ample supply of material for British mosquitoes to distribute should they get at it. He announced that the College had recently appointed a committee under the able chairmanship of Sir James Simpson to consider what steps should be taken for the banishment of the mosquito from Great Britain, and that a gold medal was to be given for the best essay on the subject. Further, in response to a suggestion by Dr. Andrew Balfour, of the London School of Hygiene, a panel of applied zoology had been formed, which would collect specimens of pests from all parts of the country and would institute research in various directions. Lieut. Alfred E. Moore, founder and hon. director of the College, spoke particularly of the importance of eliminating the cockroach and the grey squirrel. The latter was merely a tree-climbing rat and was ousting the beautiful red squirrel and doing immense damage in fruit-growing districts. Prof. Maxwell Lefroy spoke of the injury done by the common house-fly, charging it with carrying diseases that in this country alone caused between 15,000 and 20,000 deaths every year. In this connexion Major P. T. Wessel, an hon. secretary of the College, stated that it was proposed early next year to organise a fly "swatting" week. It was also argued that the friends of the College could do useful work by encouraging the use of the sparrow, which was a very destructive pest, as an article of diet in restaurants.

A further indictment of the rat was pronounced, and methods of minimising the rat menace were outlined, by Mr. Mark Hovell at the Chadwick public lecture delivered at the Barnes Hall, 1, Wimpole-street, W., on Nov. 10th, Sir William Collins presiding. He said that although rats cost this country £1,000,000 sterling per week, continuous war was not waged against them. There were spasmodic efforts to reduce the number of rats, such as Rat Weeks, but by the time the next Rat Week came round those which escaped the previous slaughter had produced many millions of descendants. He said that there would be no decided diminution in the number of rats throughout the country until continuous trapping was enforced. A 5-inch rabbit-trap was in many ways the best steel trap, but where a cage trap was required, the "Terrier" death run trap was by far the most efficient. Both could be provided with a cover, and also a signal to show if the trap was set or sprung. The presence of a "few" rats was usually disregarded, but a pair and their descendants at a low computation would produce in 11 months 1130, and in 13 months 3050. Farmers usually allowed their stacks to be rat-infested, but in six months 1132 rats would eat and waste wheat to the equivalent of 2329 quartern loaves, 306 bushels of sharps, and 723 bushels of bran. Rats conveyed trichinosis, foot-and-mouth disease, infectious jaundice, mange, ringworm, distemper, rat-bite fever, and last, but not least, plague, which during last March in the Punjab alone caused 25,000 deaths. More cases of plague occurred in this country than the public were aware of, and but for very careful supervision at ports there might be serious outbreaks. To reduce the number of rats to a minimum all unnecessary openings into houses or buildings should be closed, as well as traps being kept set continuously throughout the year. If pig-keepers and poultry-keepers were registered, means could be taken to ensure these rat centres being efficiently dealt with. Virus, he said, had no advantage over the recognised poisons, and its use was strongly deprecated. County councils could obtain a considerable income by enforcing the Rats and Mice (Destruction) Act, 1919, using police stations as the centre at which information could be obtained or given.

PUBLIC HEALTH IN NYASALAND.

THE territory comprised in this Protectorate is a strip about 520 miles in length and varying from 50 to 100 miles in width. The area is roughly 40,000 square miles, or about one-third the area of the British Isles. The most southerly portion of the Protectorate is about 130 miles from the sea as the crow flies. The general health during 1923 was good. In the early part of the year there was an extensive outbreak of influenza, but the mortality was comparatively low. The native population was at the time suffering from famine, and this no doubt caused a higher mortality than would otherwise have been the case. There was a small outbreak of a mild type of small-pox in the Mlanje area; 13 natives contracted the disease. Isolation was carried out immediately and contacts were, as far as possible, vaccinated and kept under surveillance, and the outbreak soon died out. Three cases only of sleeping sickness were reported amongst the native population; all three died. There were a few cases of paratyphoid fever occurring amongst Europeans in Blantyre. During the year there were treated at the Government hospitals and dispensaries 635 Europeans and 99,522 natives, as against 522 and 41,633, respectively, in 1922. The increase in the number of European patients was due to the outbreak of influenza; and in the natives the increase was due to the establishment of rural dispensaries, which treated 61,650 new cases during the year, as compared with 11,600 in 1922. The climate of Nyasaland, in its essential features similar to that of the rest of Eastern Africa within the tropics, is necessarily diversified owing to variations in latitude, altitude, and general configuration of the terrain, presence or absence of rivers, forests, &c.; but as a large proportion of the Protectorate lies at an altitude of 3000 feet or more, the heat is not generally excessive. The monsoon commences to blow strongly in September in conjunction with the sun's increase in southerly declination, and the first rains may be expected any time after mid-October. From their commencement to the end ot December it is usual to experience violent thunderstorms and heavy precipitation in a few hours, followed by an interval varying from 1 to 15 or 20 days of intense heat. With the return of the sun from its southern limit of declination, the thunderstorms diminish in intensity and frequency, and are replaced by steady rain, January, February, and March being usually the wettest months as regards duration of rainfall as well as actual amount. After March the frequency and intensity of rainfall diminishes rapidly, and from May to September the climate is comparatively cool and dry.

LITTLE CRIPPLES CHRISTMAS HAMPER FUND.

To the Editor of THE LANCET.

SIR,—The King has again proved his kindly interest in the fund, founded by my father, for the annual distribution of hampers to crippled children and Guildhall entertainment to little Londoners, by heading the list for this the thirty-first year of the fund. Long experience has proved the absolute necessity of this fund which brings joy to many young hearts and strengthening encouragement to little children who are bravely struggling for health, often in straits of deepest poverty. The provision of joy to children is a cause which must surely stir every heart, and I venture to make an appeal for help which I trust will meet with an immediate response. All contributions sent to me at the address given below will be gratefully acknowledged by

Yours faithfully,

FLORENCE TRELOAR.

25, Ely-place, London, E.C. 1, Nov. 10th, 1924.

LEPROSY IN INDIA.

IN a recently published little book[1] Mr. Frank Oldrieve, Secretary to the British Empire Leprosy Relief Association, puts forward a plea for a common effort to get rid of leprosy in India, which, according to official statistics, affects more than 100,000 people, though there is reason to believe that the actual number is even larger. Mr. Oldrieve describes the misery of the victims of this disease and the social damage caused by leprosy. He also summarises the progress which has been made in dealing with the disease since Armauer Hansen discovered the *Bacillus lepræ* in 1874, and claims that a united effort on the part of the Government and the public would rid the great Indian Empire of this terrible disease in a very short time. Briefly the methods he advocates are an increase of voluntary institutions, larger facilities for segregation, special clinics for out-patient treatment in all large centres, the specia care of the children of out-patient lepers, and facilities for adequate treatment of every leper in the country. The book is a praiseworthy attempt to stimulate public interest in tropical diseases, the conquering of which is of vast importance to the well-being of the Empire.

THE "WHITE INDIANS" OF PANAMA.

IN the November issue of *Man* there is an interesting report by Dr. F. C. Shrubsall, Dr. A. C. Haddon, and Mr L. H. Dudley Buxton on the so-called white Indians of Panama. Three children, two boys and a girl, the parents of the girl, and two San Blas natives, were examined, and the conclusion arrived at was that the so-called white characters are due to albinism and are of no racial significance. The authors of the report state that the head form forehead, shape of face, nose, palpebral fissure, epicanthic fold, and general proportions of the body are clearly of local Darien type. The article is illustrated by reproductions of photographs, and the physical characteristics of the albinos are described in the text.

IN aid of Guy's Hospital, the Mayfair Dramatic Club will present the Maid of the Mill, an eighteenth century comic opera, on Monday, Nov. 24th, Tuesday, Nov. 25th, and Wednesday, Nov. 26th, at 8 P.M., at the Scala Theatre Charlotte-street, London, W.

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[1] India's Lepers: How to Rid India of Leprosy. By Frank Oldrieve, Kaiser-i-Hind Medal. London, Edinburgh, and New York: Marshall Brothers, Ltd. 1924. Pp. 141.

THE

Lloyd Roberts Lecture

ON THE

RENAISSANCE OF MIDWIFERY.

Delivered under the Conjoint Scheme of the Royal College of Physicians, Medical Society of London, and Royal Society of Medicine, at the Medical Society of London, on Nov. 19th,

By HERBERT R. SPENCER, M.D., B.S. LOND., F.R.C.P.,

OBSTETRIC PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

WHILE thanking the Medical Society of London or nominating me to deliver the second Lloyd Roberts Lecture under the conjoint scheme, I regret hat I cannot claim the literary ability and charm which stamped the first lecture delivered by that disinguished man of letters, Mr. Edmund Gosse. Perhaps he Medical Society was influenced by the facts hat I enjoyed Lloyd Roberts's intimate friendship during the last twenty-five years of his life, that we were fellow workers in the same field of medicine, nd that the subjects, especially old books, which nterested him have a similar interest for me.

A PORTRAIT OF THE FOUNDER.

I have thought that I could best commemorate he founder of these lectures by giving a few particulars of his personality, character, and habits from my own xperience, and some particulars of the earliest books n midwifery in which he was especially interested nd of which he bequeathed to the Royal College of Physicians such an unexampled collection. Those books, published in the vernacular, were widely used for study by midwives, and may be said to have tarted the renaissance of midwifery.

Of Lloyd Roberts's personal appearance I need say but little: his portrait, painted by Sir William Orpen, now in the Arts Gallery at Manchester, and a replica by the artist in the Royal College of Physicians, will be acknowledged by all to be an admirable picture, and by all who knew him to be an excellent ikeness. I had the opportunity, just after it was painted, of comparing the portrait and the original ide by side.

Lloyd Roberts was short in stature, of stocky build, nd had the Celtic physiognomy and a Welsh accent much modified by his long residence in Lancashire. To the last he always addressed any man younger han himself as "lad." He was always neatly dressed, usually in a short black coat and dark trousers, and wore a silk hat tilted back on his head. He often wore a dark cape and a skull cap to protect him from he cold and draughts, of which he had an especial horror. Like his favourite author, Sir Thomas Browne, he thought it most important to keep warm. His clothes were made by the most renowned of ailors and, as he used to order a good supply in advance, he always appeared well dressed, even during he years of the war. In the hottest weather he would ide in a four-wheel cab with the windows closed. On his frequent visits to London he often used to ngage the same old cab-driver, and keep him waiting during his visits, and from the smiles upon the cabman's face I have no doubt he received a generous are. He was a very shrewd man and a great pracitioner, with a most impressive and kindly manner which procured him a host of patients. In his earlier days it is said he was somewhat aggressive; but in his later life he became, as Horace says old men hould, *mitior et melior*.

As an obstetrician and gynæcologist he practised nearly up to the day of his death over a period of more than 60 years, and his colleague, Dr. Archibald Donald, has pointed out the great amount of work he did at Manchester. He took up the operation of abdominal section early in his career. His first Cæsarean section, performed on June 3rd, 1867, figures as the first in the list of Dr. A. Routh's collection of cases of Cæsarean section by living British obstetricians which appeared in 1910. He published a work on the "Practice of Midwifery" in 1875, which reached a fourth edition in 1896 (an octavo volume of 558 pages). It was well written and well illustrated, and showed that the author kept himself abreast of the times. He read widely and was keenly interested in the work of younger men. At the same time he recognised that it was not everyone who was fitted to undertake some of the greater surgical procedures, such as the extended operations for cancer. He also did not practise the total operation in cases of myoma, although he recognised its superiority over the partial operation. In his work as an obstetrician and gynæcologist, which extended over such a long period of time, it cannot be said that he showed any great originality or made any noteworthy advance; but in the routine work of hospital practice he served for a period which is perhaps unequalled in the annals of gynæcology.

Although he was a connoisseur of good food and wine he was a small eater and a temperate drinker, and no doubt his good health and long life were in part due to his careful dieting; his lunch would have pleased Luigi Cornaro, for he told me it consisted for many years of a glass of milk. He had a cellar well stocked with wines of choice vintages, and was never happier than when dispensing them to his friends. When travelling he used to take his own wine with him, and would carry bottles wrapped in paper under his arm to the table at the hotel where he was dining. In a large public dining-hall his short figure in evening dress, wearing a black skull-cap and carrying two large bottles under his arms, would attract some attention, especially from the waiters; he always rewarded each of those who served him at the end of the meal. At the dinners to a small party of his friends he never gave any but the choicest wines, liqueurs, and cigars supplied from his own stock. Of pictures, prints, glass, china, and jewels (especially diamonds, which he had bought for his wife) he had a very valuable collection, acquired under the guidance of skilled experts, and by degrees he became an expert himself. In collecting old books he employed the most celebrated of the old-book sellers, and, as he had more regard to the condition and rarity of the book than to the price, he was able to accumulate a very valuable library, especially of old medical books, which to the number of 1800 (including 50 incunabula) he bequeathed to the Royal College of Physicians of London. This is said by the Harveian librarian, Dr. Arnold Chaplin, to be the greatest gift of medical books to the College since the Marquis of Dorchester's in 1680.

As regards medical practice and practitioners he was *laudator temporis acti* and spoke with great appreciation of the capabilities of some of the physicians whom he had known in his early days. He was lenient towards the foibles of some of his contemporaries, appreciated the work of younger colleagues, and was quick to take up a new idea. He always carried a note-book with him, in which he used to set down in his large scrawling script an idea or note of an old book or an edition which he did not possess, and to make sure there was no mistake he often got his informant to write the note.

In religious matters I think he was of the opinion of the philosopher who said that all men of sense were of the same religion, and when asked what that was replied: "No man of sense tells." He had many friends amongst church dignitaries and dedicated his 1898 edition of Browne's "Religio Medici"[1] to his friend the Marquess of Normanby, Canon of St. George's Chapel, Windsor. In his frequent week-end visits to London he usually attended the Sunday service at St. Paul's Cathedral or Westminster Abbey and sometimes the service at a Roman Catholic chapel. He had a great admiration for the English cathedrals, and, in spite of some apocryphal stories, I think he was a reverent man. He could hardly be otherwise than reverent who loved Sir Thomas Browne above all writers, who edited a charming edition of the "Religio Medici," who learned Italian in his old age that he might read Dante (on whose scientific work he wrote a book), and whose collections showed that he was a lover of the good and beautiful in men, ideas, and things.

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[1] Lloyd Roberts possessed 21 editions of the "Religio Medici"; these are now in the Rylands Library, Manchester.

These brief particulars about my departed friend's personality I have thought it well to set down, mindful of the exhortation to commemorate our benefactors left us by Harvey, about whose personal characteristics we all regret that more particulars have not been transmitted to us by his contemporaries. It is for his medical library that he will be longest remembered, and especially for his unequalled collection of early medical books, including the "Byrth of Mankynde" (1540).

EARLY BOOKS ON MIDWIFERY.

It is the purpose of this lecture to give some particulars of the first books on midwifery in Germany, France, Italy, and England, which may be said to have started the Renaissance of Midwifery.

Obstetrics is an ancient art. It was outside the Garden of Eden that midwifery was born, "of man's first disobedience" with the dread decree to woman, "in sorrow thou shalt bring forth children." And we find the Garden of Eden incident referred to and depicted in some of the first books of midwifery (Fig. 1).

The early history of midwifery is too extensive to be treated here; but it may be stated that the most distinguished of the ancient writers on obstetrics was Soranus of Ephesus, who lived in Rome at the beginning of the second century of the Christian era under Trajan and Hadrian. He wrote περὶ γυναικείων παθῶν, which stands out as one of the most important works in the history of midwifery, which had at that time reached a high state of development.

Subsequently the art of midwifery made no advance at the hands of the Byzantines and actually declined amongst the Arabians, who devoted more attention to the destructive operations on the child than to conservative treatment of the mother. One factor in preventing advance in the science of obstetrics amongst the Arabians was the prohibition of anatomical research in the koran. But the chief reason why no advance was made was that the practice of midwifery was in the hands of midwives, as it had been since the earliest times.

The history of midwives is an interesting study in itself, too extensive to be treated here. Their virtues have been immortalised in the bible in the persons of Shiphrah and Puah, who refused to obey the command of Pharaoh to kill the male children of the Hebrew women. What a loss to the world it would have been if little Moses had been murdered by the midwives or had been allowed to perish in his ark of bullrushes amongst the flags! In Rome monuments still exist which were erected in honour of midwives in the days of the Empire, and though some of the midwives, like Terence's Lesbia and Mrs. Gamp, were inclined to have a liking for the bottle, as is suggested too in some of the oldest illustrations of the lying-in chamber, in the main they were an honoured class. Let us not forget that Socrates was the son of a midwife Phainarete, "a very noble and worthy midwife," to whom he owed the "ars obstetricia Socratis," painfully drawing forth ideas from his pupils as his mother had brought forth children from the womb.

Yet up to the time of the Renaissance no midwife had written a work which developed the science or advanced the art or dignity of her calling. For the well-known "Trotula" written in the thirteenth century is no exception. About the personality and even the existence of any such person as Trotula there is considerable doubt. In Spach's "Gynæcia" (1597) the work is said to be by "Eros quem aliqui Trotulam inepte nominant, medicus libertus Juliæ." In the same (as in the earlier 1566) edition of the Gynæcia, the masculine adjective *compulsus* employed in the preface shows, unless the MS. was erroneous or miscopied, that the author was a man. It was probably written by a Salernitan male physician. The work is noteworthy for describing (as Soranus was the first to do) the support of the perineum and the repair of complete tear of the perineum, which appears in "Trotula" for the first time in the history of midwifery.

There is in the British Museum (Sloane 2463) a Trotula MS. of the fourteenth century (for the typed transcript of which I am indebted to my friend Dr. Charles Singer) in which the operation is described: "Other whiles sume women have so gret greva(n)ce in beryng of a childe that þe skynne þat is between the two prevy membres brekith a two and all is a hole." After applying butter and wine and replacing the womb which is to be made *nesshe* with wine "a good whiles" you are to "sowe to geder þat pece that is broken with a silken threde with a quarell-nedell [2] in thre places or in foure and sithen do pitche on a softe lynnen cloth and leye it to þe prevy membre."... "and let her liggen as I sayd rather a sevyne dayes or a nyne and let her eten and drynken in þat while but litell and keep hem well from cold and fro metes and drynkes that myght maken her eny coughe. And for to kepe women from this myschef in þat time that they traveyllen of child let make a rounde thyng of þe shappe of an eye of small lynnen clothe and pitch it on her fundeme(n)t and everich tyme of chylde and ev(er)yche tyme let thrust þat balle in her fundement and þ(at) shal saven þe skyn hole from brekyng."

The expression "thrust that balle in her fundement" does not give the true sense of the original. In Spach's Gynæcia, 1597, the description is: "Præparetur pannus in modum pilæ oblongatæ, et ponatur in ano, ad hoc ut in quolibet conatu ejiciendi puerum, illud firmiter ano imprimatur ne fiat hujusmodi continuitatis solutio." It is clear, therefore, that Trotula, following Soranus, recommended the pressure of the pad *against* and not *in* the anus.

Until the invention of printing the wisdom of the ancients was inscribed in such manuscripts comparatively few in number, usually written in the classical language and therefore readable only by the learned. For the preservation of these works we are indebted in great part to the various religious bodies and especially to the monks. The Church of Rome, which has at times opposed the pursuit of medical knowledge, has also been one of its greatest promoters. Many examples of this are given in Curatulo's "L'Arte d Juno Lucina in Roma." And there are not a few instances of ecclesiastical dignitaries who have been practitioners of medicine. Pope John XXI., the only member of the profession to occupy the papal chair, was a doctor who taught medicine in Siena in the middle of the thirteenth century. As Petrus Hispanus he published his work "Thesaurus Pauperum," which was printed for the first time in 1476; in the Lloyd Roberts Collection at the Royal College of Physicians are three copies of the work, including one of the 149 edition.

Nicholas de Fernham, an Englishman, was professor of medicine at Bologna, whence he returned to England in 1241 and became bishop of Durham. In a fourteenth century MS.[3] we read:

> "This medecyne (elecampane) taught þe Pryor o Bermondsey to a woman þ(at) was nygh dede on the flux of hy(re)marice. And to Amende hyrre stomak he let take two handfuls of þe medell rynde of þe brome & let sethe hyt in thre potell of clere water to a potell clens hit & putt þer to half a pint of whyt suger and lete seth eftsones [4] & gef hyr to drynke."

The Church of England, like the Church of Rome has had its medical chief. In view of the former practice of the Archbishop of Canterbury of licensing doctors and midwives, it is interesting to note that the only Primate who belonged to the medical profession was Archbishop Secker (*ob.* 1768).

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[2] A four-sided or glover's needle.

[3] British Museum, Sloane 2463, Dr. Singer's Transcript p. 21.

[4] Soon after, quickly.

The Renaissance of midwifery occurred somewhat ater than that of other branches of learning. The ntellectual world was in labour, in the throes of delivery from the domination of the Church, from the blind acceptance of the authority of the ancient writers Aristotle and Galen, and from the restrictions of the classical languages. The Reformation had brought about the first stage: Paracelsus did something to bring about the second stage when he cast the works of Galen into a bonfire in the streets of Berne and anathematised his opponents with the words “sic vos ardebitis in Gehenna.” And Eucharius Rösslin seized the opportunity afforded by the discovery of printing to publish his “Rosengarten” in German, so that it could be understood by the people and particularly by the midwives for whom it was written.

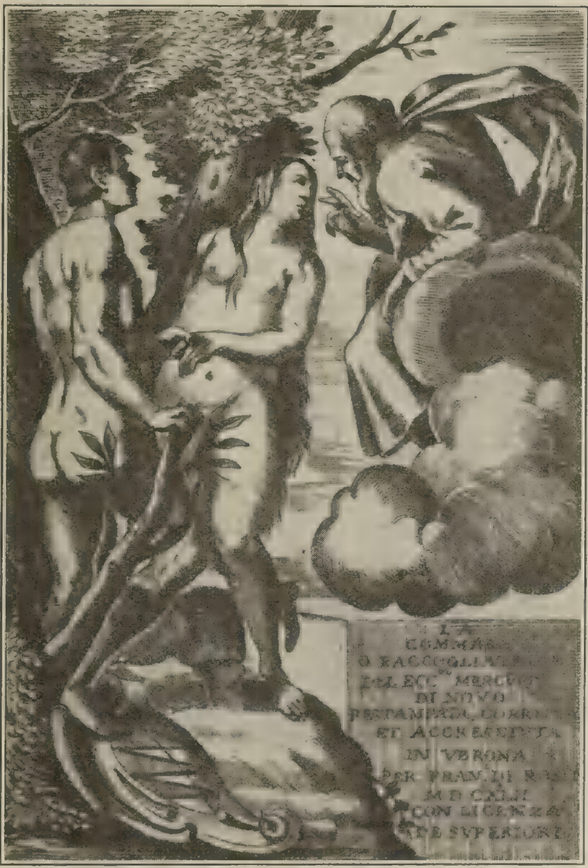

FIG. 1.—Title-page of the 1642 edition of “La Commare,” showing the Lord God addressing Adam and Eve in the Garden of Eden. From a copy in the author's library.

Although Ortolff von Bayerland had published, about the year 1495, at Ulm a German work showing “how women should conduct themselves before, during, and after childbirth,” it did not contain much detailed account of obstetrics. To Eucharius Rösslin is due the honour of the first printed work specially written for midwives.

RÖSSLIN'S “ROSENGARTEN” (A.D. 1513).

Eucharius Rösslin Röslin or Rhodion[5]) was a physician at Worms and afterwards at Frankfort on the Main. According to documents still existing at Freiburg in Breisgau, Rösslin was an apothecary there in 1493 and 1498. In 1502 he was received into the Citizen's Union or Guild Bürgerverband) and was a householder in 1526. In 1504 a legal action was brought against him for “misshandlung,” as the result of which a verdict was given against him and he was compelled to pay all costs and a fine of 3½ pounds of pfennigs. An autograph letter from Rösslin referring to this action has been published by K. Baas and reproduced by G. Klein in the notes to his reprint of the “Rosengarten” (1910). In 1506 he was elected physician to the city of Frankfort for a period of six years at a yearly stipend of 60 florins; and in 1508 he entered the service of the Duchess of Brunswick and Lüneberg to whom he dedicated his “Rosengarten.” Before the expiry of his term of office he left (in 1511) the service of Frankfort and became city physician to the town of Worms, returning again to his Frankfort post at an increased salary of 70 florins. According to Baas, he died in September, 1526.

v. Siebold in his Geschichte der Geburtshülfe 1845) makes a curious error in giving the date of his death as 1553 or 1554, confusing this Eucharius Rösslin with his son who bore the same name and died in 1553 or 1554. The error is the more remarkable because in the Latin translation of the “Rosengarten,” entitled “De partu hominis,” there is a preface dated 1532, written by Christian Egenolph and addressed to Eucharius Rhodion which refers to the death of the father “cui bene sit in Domino, cujus in hac urbe tu et nomen refers et functionem.” In this work Rösslin acknowledges his indebtedness to the ancient writers Hippocrates, Galen, Rhases, Averroes, Avicenna, and Albertus magnus; but the most important parts are taken from Soranus, probably from a manuscript by Moschion (or Mustio), which itself was copied from Soranus “word for word.”[6] For the discovery of the first manuscript of Moschion we are indebted to the learned writer on medicine and natural history, Conrad Gesner. It is suggested by Gustav Klein that Rösslin used the Codex Palatinus Latinus which was at that time in Heidelberg, not far from Freiburg, Worms, and Frankfort, where Rösslin lived.

Some of these manuscripts, dating from the ninth to the fifteenth century, were illustrated, amongst the most interesting being the plates of the fœtus in utero which, reproduced in the English translation, “The Byrth of Mankynde” (1540), were amongst the earliest copperplates published in this country. The figures have been often reproduced. Dr. Klein has published a photographic reproduction of them from the Munich Codex Latinus of the thirteenth or fourteenth century. One plate, not met with in the earliest MSS., shows twins grasping each other by the heel: this was probably drawn by a monk in reference to the birth of Jacob and Esau.

Rösslin also published some admirable original plates—viz., the dedication plate, depicting the author presenting his work to the Duchess of Brunswick and Lüneberg, a plate showing the midwife examining a parturient woman (Fig. 3) and a figure of the birth-chair. It is stated by G. Klein that about 100 editions of “Rosengarten” are known, three editions being published in 1513 (Figs. 2 and 3). He gives a reproduction of the title-page of the 1513 edition printed by Gran at Hagenau, which shows a mother with her naked boy and a midwife holding a babe wrapped in swaddling clothes. The title-page of the 1524 edition is also given by G. Klein (Fig. 4). It is a fine representation of the lying-in chamber showing the midwife bathing the baby. In this plate the midwife sits with her bare legs in the tub, no doubt to make sure that the water was of a proper temperature, a useful practice adopted also by the Japanese midwives (Fig. 5).

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[5] The name Rösslin was latinised into Rhodion in the Latin ranslation issued by Eucharius Rösslin the younger in 1532.

[6] As stated in the Codex Hafniensis: Ingerslev, Jour. of Obs. and Gyn. of Brit. Empire, 1909.

Under the title "De partu hominis," Rösslin's son published a Latin translation, of which, according to Klein, 11 or 12 editions appeared, the first in 1532. The title-page of my copy of the 1554 edition of "De partu hominis" gives the representation of the lying-in chamber reversed from that in the "Rosengarten" 1524 edition, and some quaint woodcuts, depicting the feeding and rearing of the child. The "Rosengarten" was translated into English by Jonas under the title "The Byrth of Mankynde" and published for the first time in 1540. A second amended English translation was made by T. Raynalde, who used the Latin edition of E. Rhodion, the younger. The late Dr. J. W. Ballantyne wrote a very full account of the English work, giving illustrations from many of the editions. He had not had an opportunity of inspecting the first edition, which is very rare, the only three copies he had been able to find in existence being in the libraries of Prof. Klein, of Munich, and the British Museum. The Royal College of Physicians now possesses 15 copies (11 editions) of "The Byrth of Mankynde," of which 11 copies, including two of the rare first edition, came from the Lloyd Roberts Collection. The celebrated plates of the position of the fœtus appear in this edition and not "for the first time in the 1560 edition," as once stated by Dr. Ballantyne.

The "Rosengarten" contained little that was original; but it had the merit of being written in the vernacular in which it could be read by midwives, in whose hands the practice of midwifery almost entirely lay; it was the first work dealing with obstetrics apart from medicine and surgery and in its illustrations it gave for the first time printed figures of the birth-chair, the lying-in chamber, the position of the fœtus in utero, and of the feeding and rearing of the child. Some of the plates are of high artistic merit and were copied by subsequent writers, including Rueff and Ambroise Paré.

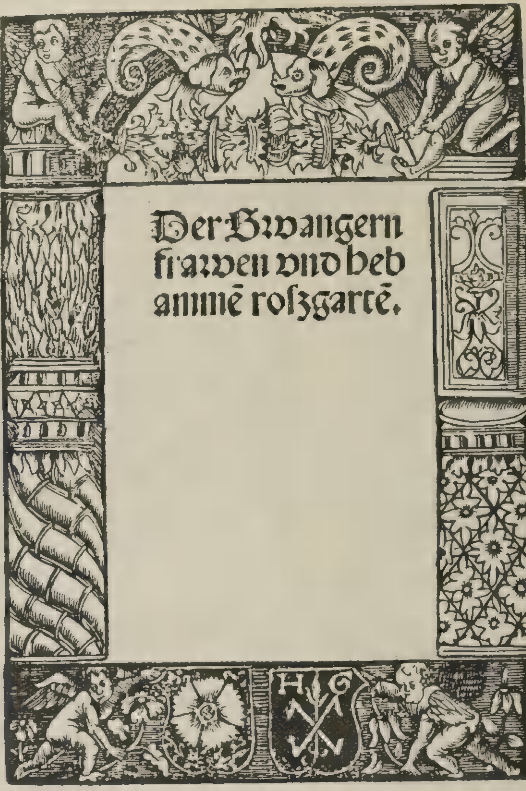
Der Swangern
frawen vnd heb
ammē roſzgartē.

FIG. 2.—Title-page of one of the 1513 editions of the "Rosengarten." From a copy in the library of the Royal Society of Medicine.

AMBROISE PARÉ'S "LA MANIERE DE EXTRAIRE LES ENFANS" (A.D. 1551[7]), "DE LA GENERATION DE L'HOMME" (A.D. 1573).

The first of the obstetric treatises by Ambroise Paré entitled "La maniere de extraire les Enfans tant mors que vivans hors le ventre de la mère, lors que nature de soy ne peult venir a son effect" appeared at the end of the "Briesve collection anatomique," published in 1551. The second treatise, "De la Generation de l'Homme receuilli des anciens et modernes" was published as an octavo volume in 1573 under the title "Deux livres de chirurgie" and was reproduced in 1575 in the first edition of the complete works of Paré. In his "Maniere de extraire les Enfans" Paré revived the operation of podalic version which had been entirely neglected for many centuries. The operation had been practised in the time of Celsus, Soranus, and Philumenos, but had found no place in the treatises of the Arabian physicians. Paré himself does not claim originality; but acknowledges that he had seen podalic version practised by Thierry de Hery and Nicole Lambert, "master barbers and surgeons in this town of Paris."

Paré's description of the operation is as follows:—

> "And supposing that the child presents naturally having the head towards the outlet (au coronement), to duly deliver it by art you must gently push it back in the contrary direction and seek the feet and draw them into the outlet. By doing this you will easily turn the child. And then when you have drawn the feet into the outlet you must draw one outside and tie i above the heel in the manne of a running noose with a moderately long fillet like tha with which women bind thei hair. Then you will replac the said foot into the sai womb and having found th (foot) you will draw it outsid and then will pull on the fille to which the other foot i attached. And when you hav thus drawn the feet outsid the womb you will draw o both, equally on one side a on the other, little by littl and without violence if yo possibly can."

He also advises tha the abdomen should b moderately bound an pressed above the umbilicus and the mothe should be commanded t hold her breath at inte vals by closing her nos and mouth, and that sh should bear down as muc as possible. Sternutatori may be given to aid in th expulsion of the child. H warns against pulling o the arm in case of presentation of the shoulder, fo which he recommended, i certain neglected case amputation of the lim followed by podalic ve sion. Paré's re-introdu tion of podalic versio after many centuries neglect marks him as the master-writer of th Obstetric Renaissance. His work was plagiarise by Franco[8] in 1561, and attempts have been mad in modern times to deprive Paré of credit by quotin from certain editions of his work.

Paré's works passed through many editions, and was his practice to make alterations when additio to his knowledge called for them. Of his views the separation of the bones of the pelvis in the a of childbirth, which have been criticised, he write "mais véritablement les os de hanches et pu s'ouvrent et separent les uns des autres."

> "I had hitherto maintained," he continues, "by wo and writing that the os pubis could not separate and par open in the act of childbirth; however, the contra appeared to me on the first day of February 1579 by t anatomy of a woman who had been hanged fifteen da after being delivered, of whom I saw the dissection a found the os pubis separated in its middle about half finger's breadth in the presence of Master Claude Rebo and other sworn surgeons at Paris. Also we saw the ischion separated from the os sacrum. If anyone is willing to believe it I will refer him to the book of Nat which does things which our intelligence is not capable understanding."

Paré repeats the Hippocratic opinion that in t ase of children born at the eighth month “their ife is brief or null.” He recommends late ligature f the cord if the child is feeble. The cord should be ied at a distance of three fingers' breadths from the mbilicus, and after the first knot is tied the ends of he ligature should be returned and two knots made n the side opposite to the first knot and tied more ightly than the first. And then “it only remains o leave the child to God and the women.”

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[7] Malgaigne: "Œuvres complètes d'Ambroise Paré," 1840. Eloy gives the date of publication as 1549; Fasbender 1550; the "Privilegium" is dated July 6th, 1549.

[8] Traité des hernies, Lyon, 1561.

The work on the “Generation of Man” contains he anatomical and other figures, including the birth-hair, copied from Rösslin and Rueff. Paré published figure of lead caps for lcerated nipples which are till employed at the resent day. I have in ny library a work by T. unus,[9] with an autograph inscription by the uthor to Conrad Gesner, hich recommends the pplication of wax cups or himbles containing a few rops of pine resin to the ipples, to be worn during he last three months of regnancy as a certain eans of preventing racks. To the criticism hat some women or their usbands might object to he smell of the resin, unus replies that anyone ho had suffered from the *agnum malum*, cracked ipples, would tolerate the mearing not only of the ipples but of the whole reasts with medicines owever odoriferous. hese are examples of hich there are many howing that prematernity are is not a modern invention but was practised by he Renaissance writers nd also by Ortolf von ayerland, who gives etails of measures to be aken “vor der Geburt.”

Roſegarten
Das vierd Capitel ſagt wie
ſich ein jede fraw/in/vor/vnd nach der gebur. haltē ſoll
vnd wie man ir in harter geburt zů hilff kommen ſoll.

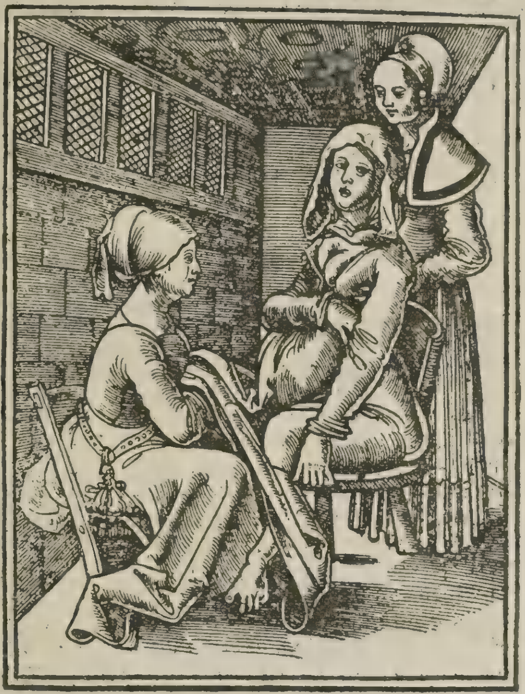

FIG. 3.—Showing midwife examining patient seated in the birth chair. From the copy of the 1513 edition of the “Rosengarten” in the library of the Royal Society of Medicine.

The movements of the hild felt on palpation were irst described by Paré. He enied the existence of the ymen except as a rare ccurrence. He published number of figures of intruments for the delivery f the dead child and gave an illustration of the peculum matricis, an ancient instrument known to he Romans, also of instruments for the fumigation f the uterus. Of Cæsarean section on the living he ad seen disastrous results at the hands of Guillemeau hich caused him to write, “Je ne conseillerai amais de faire tel œuvre ou il y a si grand peril sans ul espoir.” It was in reply to this statement that is friend Rousset wrote the first work on Cæsarean ection, “Hysterotomotokie” (1581).

The literature of the life and works of Paré is very xtensive. As was the case with the founder of this ecture, there seems to be a doubt about the actual ate of Paré's birth, the years 1509, 1510, 1514, 1516, 517, 1528 having been given by various authors. Malgaigne[10] states, on the authority of Bégin, that A. Paré was actually born in 1517.” He would hus be 73 and not 80, as usually stated, at the date f his death.

On St. Bartholomew's Day, 1572, “it was not easonable that he should be massacred,” King Charles IX. exclaimed after taking a shot with his arquebus at his less distinguished subjects, “il pouvait servir à tout un petit monde.” This service Paré, the Reformer of Surgery, the Reformer of Midwifery, continued to render up to the time of his death in 1590—and “his soul is marching on.”

SCIPIONE MERCURIO'S “LA COMARE” (A.D. 1596).

The first of the Italian writers for midwives was Scipione Mercurio, who published his work entitled “La Comare o Riccoglitrice” in 1596.

Scipione Mercurio was born in Rome about the year 1540 and studied medicine at Bologna and Padua, but soon devoted himself to theological studies and entered the Dominican monastery at Milan, where he took the name of Hieronymus. He still continued to occupy himself with the study of medicine, and finding his monastic life did not afford him sufficient opportunities for the practice of medicine he quitted the monastery and travelled in France and Spain in the years 1571 and 1572 as physician to a German officer, Hieronymus de Ladrone. On completing this journey he returned to Italy and practised with great success in Padua and Milan. He had studied in Bologna under the celebrated Arantius, of whom he speaks in the highest terms as “the most learned anatomist of his time and my very kind preceptor.” He mentions a case in which he saw Arantius, in the year 1578, deliver a living child by Cæsarean section from a woman who had been killed in the ninth month of pregnancy. He states that Arantius had familiarised himself with the anatomical conditions of pregnancy by performing many dissections of gravid women. He had also seen Arantius demonstrate the hymen, the existence of which, except as a rarity, had been denied by Paré.

Scipione Mercurio states that in Toulouse he had seen two women who had been safely delivered by Cæsarean section which at that time (1571) was “as well known in France as bleeding for headache in Italy.” He may be said to have introduced the operation of Cæsarean section on the living woman into Italy and published the first printed illustration of the operation.

Scipione Mercurio led a stormy and adventurous life; at one time travelling with a German officer, Ladrone, in France and Spain, at another pursuing his theological studies, then abandoning these for the practice of medicine, and again resuming them; finally settling in Venice where he lived for 15 years. He died about the year 1615 or 1616, according to Ghilini in Venice, according to Renazzi in Rome in the ancient Dominican convent of Santa Maria. His other writings show his great interest in medicine, and he seems to have specialised in the practice of obstetrics. He had little faith in medical writers who lacked practical experience. Of Sansovino's “L'Edificio del corpo umano,” he writes that the author was neither a physician nor a surgeon, and "what," he asks, "could he say of value about a profession which he did not know or practice ?" Of Jacob Rueff, whose belief in astrology he condemns, he complains that he was a "mere surgeon," and relied for many of his statements on the authority of others. Mercurio's object was to write a work for the midwife in a language which she could read. "Some Roman Aristarchus" might object that he had not written it in pure Tuscan. "No," replied he, "I have written it in the Roman dialect because I am a Roman." Those who affected the Tuscan style he referred to Boccaccio and Bembo. If they did not like his work, let them do him the great favour of not reading it. Perhaps the less it pleased his critics the more it would please others. He acknowledged that he had profited by the works of others—he gives a list of 80 authors whom he had consulted—and says he could never pardon Aristotle for adopting the statements of Hippocrates without once mentioning his name. Any errors in the work he prays The Lord will enable him to see and amend and begs his critics not to censure that which is written for a good purpose.

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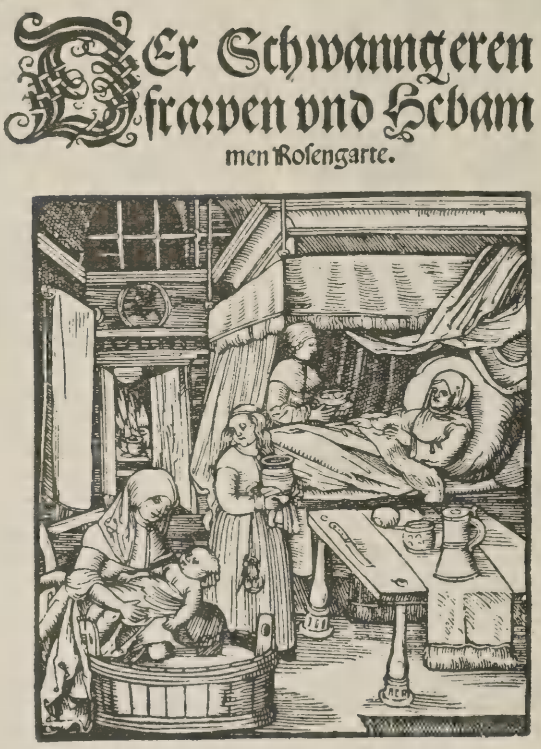
[9] Thaddeus Dunus: “Muliebrium morborum remedia,” 565.

[10] Malgaigne: Loc. cit.

Mercurio's writings show that he was a man of wide erudition which he was wont to bring to bear upon his critics in pointed shafts of wit and learning. His evident fondness for polemics explains the chequered character of his career. Yet withal Mercurio has a charitable spirit and a kind heart, as is shown in many places in "La Comare," and especially in a chapter on the suckling and home-nursing of children by their mothers. An eloquent passage on the joy of a father in greeting his children after his day's work is over leads one, in the words of Curatulo, "to make strange conjectures about this Dominican friar, whose life would furnish the material for a most interesting psychological romance."



Der Schwanngeren
Frawen vnd Hebam
men Roſengarte.

FIG. 4.—Title-page of the 1524 edition of the "Rosengarten." From G. Klein's reprint of the 1513 edition, showing the midwife bathing the infant while sitting with her bare legs in the bath.

"La Comare" is the first work in which contraction of the pelvis is mentioned as an indication for Cæsarean section. It contains a description and illustration of the "hanging-legs" position for delivery in cases of contracted pelvis, which Walcher published in 1889 as something new, and of the position in which very fat women should be placed for delivery, a position which Osiander says even practised acrobats could hardly maintain for more than a quarter of an hour. There is also a description of the operation of bimanual version which is usually associated with the name of Braxton Hicks. Mercurio advised that the diet of pregnant women should be reduced one-third during the last three months.

The work is divided into three books. The first book deals with natural labour and the care of the pregnant woman and of the new-born child by the midwife. The second book deals with præternatural labour—i.e., with the child's hands, feet, or side presenting—and shows how the midwife should deal with these "difficult and dangerous cases." The third book deals with the maladies which may occur to the lying-in woman and new-born child, and teaches the midwife how to treat these maladies in case the patients do not wish, or are ashamed to call in a doctor.

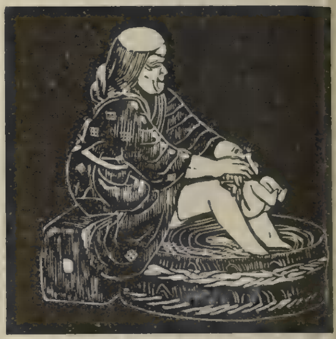


FIG. 5.—White-line wood engraving by Horace Gerrard (from an antique Japanese ivory netsuke in the author's possession) showing the midwife as in Fig. 4.

Von Siebold in his "Geſchichte der Geburtshülfe" (1845) says "La Comare" was first published at the beginning of the seventeenth century—Haller gives the date of the first edition (which he had not seen) as 1604. Quetif and Eckard, the biographers of Mercurio, speak of an edition which appeared before 1600, but leave the matter doubtful.

The first edition actually was published in 1596, the second and third books being dated 1595. That "La Comare" is a *cinque cento* book was first made known by Davidson,[11] of Breslau, in 1864. A few years ago I was fortunate enough to obtain a copy of this edition, which is very rare, only three other copies being known to exist. Fasbender says there were 17 editions of the work, and Curatulo[12] gives a short account of these 17 editions. I possess two editions (1680 and 1786) not mentioned by Curatulo, and these with the 1713 edition in the Lloyd Roberts Collection of the Royal College of Physicians, bring the number of the editions of "La Comare" up to 20.

The first edition* "La Comare o Ricoglitrice," Venice, G. B. Ciotti, 1596 (second and third book dated 1595), 4°, is very rare. There is a copy in the Marcian Library at Venice, another in the Library of the Arcispedale in Florence, a third in the Alexandrine Library at Rome, and a fourth copy is in my possession. There are some good anatomica figures from copper plates by Franciscus Vallegius The other figures are rough woodcuts. I have given a reproduction of the title-page and some other figures from this edition in the Harveian Oration (1921) The second edition,* "La Commare o Riccoglitrice," Venice, 1601, G. B. Ciotti, is also rare. The second book has no separate title-page. The third book is dated 1600. There is a remarkable title-page (Fig. 6) to this edition which is dedicated to Octavian Malipiero, the stemma of whose family is given below, and above is a portrait of Catherine Maripiero who fell while engaged in sinking the Turkish fleet at the battle of Lepanto (1571), in which Cervantes was wounded and lost the use of his left hand. At the sides of the title-page are figures o cipio Africanus ("belli gloria") and Cato of Utica 'reipublicæ splendor"). The artist is not named, ut a comparison with his other work shows that the late was engraved by Vallegius.

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[11] Monatschrift f. Geb. u. Frauenkr., Bd. xxiii., p. 345.

[12] Curatulo: Loc. cit.

* A copy is in my library.

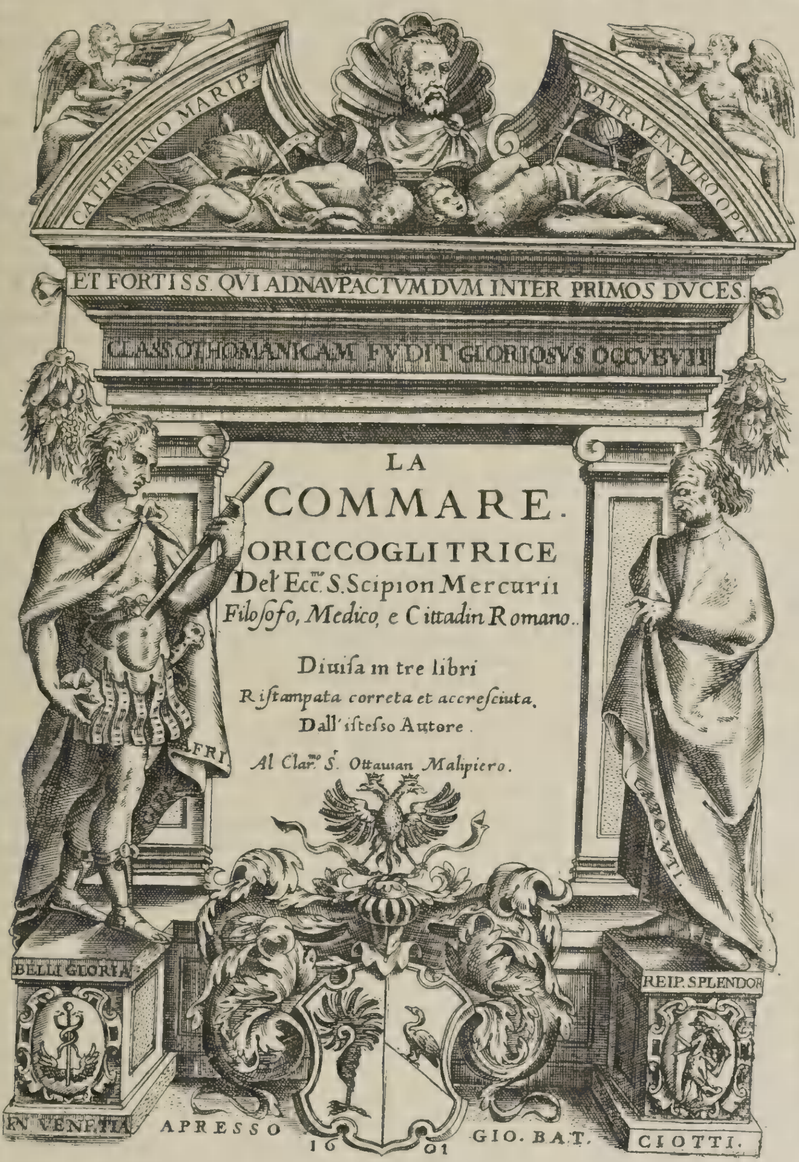
The third edition appeared in 1606 (title-page as in econd edition, dated G. B. Ciotti, 1601). In his edication (of the first book) to Octavian Malipiero, e author signs himself Girolamo Mercurio Romano from the con- ent of S. ustorgius at ilan, 30th Octo- er, 1604," and ates that this the third lition, "ristam- ata la terza olta" ("re- rinted for the ird time"), hich really eans *printed* for e third time, r he adds that dedicates it Malipiero with e same affec- on as he did e second im- ression (la conda impres- one). The cond book has otti's "Min- va" printer's late, and is ted 1606. The ird book has nilar title-page d date (1606) the second. is edition is metimes called e 1604 edition e.g., by Cura- lo,[13] and was ought by aller to be the st edition. The le-page is that the second lition, and, though the dication is ted 1604, the tes on the title- ges of the cond and third oks show that did not appear 1606.

Subsequent itions accord- to Curatulo peared in 1607, 12, 1614, 18,* 1620, 21,* 1642,* 45, 1652,* 1653, 1662, 1671, 1676, and 1703.* Of se editions those marked with an asterisk are in library; the 1612 edition quoted from v. Siebold Curatulo,[14] I have been unable to find in the refer- ce given, and the 1614 edition, quoted from Haeser, given by v. Siebold as *1613*.

I possess two other editions of which I have not nd a record—viz., the 1680* edition, Venetia—affano Curti, and the 1686* edition, Venetia—F. Valvasense. [It is possible that the 1676 edition, quoted by Curatulo from Quetif and Eckard, also printed by Valvasense, has been mistaken for the 1686 edition.]

Lastly, the Royal College of Physicians has a copy of the 1713 edition, Venezia, Dominico Lovisa, in the Lloyd Roberts collection. The 1642* edition has a fine title-page of the Lord addressing Adam and Eve in the Garden of Eden (Fig. 1). Appendices on "Il Colostro" by di Castro and on Baptism by "Un gravissimo autore" are added to this and later editions. An additional appendix from Marinello's "Medicine partinenti al Infermità delle donne gravide" appears in the 1703 and 1713 editions.

Besides "La Comare" Scipione Mercurio wrote "The Catholic Courtier"—"The French Disease"—"Comments on Tasso's Seven Days of the Creation of the World"—"The Clock of Health"—"On the First Part of the Aphorisms of Hippocrates"—"On the Popular Errors of Italy."



CATHERINO MARIP.
PATR.VEN.VIRO OPT.
ET FORTISS. QVI ADNAVPACTVM DVM INTER PRIMOS DVCES
CLASS.OTHOMANICAM FVDIT GLORIOSVS OCCVBVIT

LA
COMMARE.
O RICCOGLITRICE
Del'Ecc.mo S. Scipion Mercurii
Filoſofo, Medico, e Cittadin Romano.

Diuiſa in tre libri
Riſtampata correta et accreſciuta.
Dall'iſteſso Autore.

Al Clar.mo S.r Ottauian Malipiero.

IN VENETIA APRESSO GIO. BAT. CIOTTI.
1601

FIG. 6.—Title-page of the second edition of "La Commare," formerly thought to be the first edition. This title-page, unaltered, was used for the third edition, and, with the date altered to 1621, for the 1620 and 1621 editions. The title-page of the first edition (1596) was reproduced in the Harveian Oration for 1921.

WILLIAM HARVEY'S "DE GENERATIONE ANIMALIUM" (A.D. 1651).

The Renaissance of Midwifery occurred later in England than in Germany, France, and Italy. It had made some progress as a result of the appearance of translations of the works of Rhodion and Paré; but no original book on the subject had been published until 1651, when Harvey published his "De Generatione Animalium" with the chapter "De Partu" which justifies Aveling's designation of Harvey as the Father of British Midwifery. I have elsewhere[15] given a detailed account of Harvey's contributions to embryology and midwifery and have pointed out the teachers at Padua who had specially written on those subjects. Spach's third edition of the Gynæcia, a collection of ancient and recent writers on gynæcology, had appeared in 1597, and the first edition of Scipione Mercurio's work, "La Comare," had been published in 1596, four years before Harvey went to Padua to study.[16] Scipione Mercurio had himself practised obstetrics at Padua and it was probably the great attention devoted there to obstetrics and the appearance of "La Comare," the second edition of which was being prepared when Harvey joined the University, which stimulated Harvey to emulate the Paduan obstetrician by writing his "De Partu," which was the first original English work on midwifery.

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[13] Loc. cit.

[14] Loc. cit.

* A copy is in my library.

[15] Harveian Oration, 1921: William Harvey, Obstetric Physician and Gynæcologist.

The "De Generatione Animalium"—for the publication of which we are indebted to Sir George Ent—consists of 72 "exercitations" followed by chapters on "labour," "the membranes and humours of the uterus," and "the conception." There is a printer's error in the numbering of the exercitations of the first (Latin) edition, printed in London, Exercitatio V. being printed Exercitatio IV., and the error is continued in the subsequent "exercitations," so that the last appears as Exercitatio LXXI., though it should be Exercitatio LXXII. This printer's error, which was corrected in the later editions, may have led to some mistakes in references to Harvey's work.

The first (Latin) edition, printed in London 1651, contains a striking title-page representing Job sitting on a throne and opening an egg from which various animals are escaping; on the egg is printed "ex ovo omnia," a pregnant generalisation which Harvey made as a result of his researches on generation. The legend is omitted from the egg in the first Amsterdam edition (Leers, 1651). The first English edition appeared in 1653 with a portrait by Faithorne, which is often missing. It is one of the best of the engraved portraits of Harvey."

Prefixed to the first English edition is a laudatory ode to "the incomparable Harvey," signed M. LL., M.D., which stands for Martin Llewellyn, M.D. The English edition is written in quaint and spirited language and was probably produced under the supervision and with the approval of Harvey, who lived for four years after its appearance. Dr. Robert Willis, in the preface to his translation of Harvey's works, says that the English translation of the 1653 edition was made by Martin Llewellyn, but does not give his reasons for the statement, which perhaps receives some support from the facts that Harvey handed over the Latin edition to Ent to see it through to the press, that Llewellyn certainly wrote the ode to Harvey, was, like him, a Royalist and obtained the M.D. Oxon, and was a candidate for the R.C.P. in the year (1653) in which the translation appeared.[18]

Harvey's friend and patient, Francis Bacon, published in 1605 his "Advancement of Learning" which contains his inductive method—the accumulation and systematic analysis of facts obtained by observation and experiment—which forms the basis of modern scientific work. Harvey alludes to Bacon as "our most learned Verulamius," and we require stronger authority than Aubrey's for the statement that Harvey spoke derisively of him. Indeed, the preface to the "Generation of Animals" in its arguments and often in its language recalls Bacon's "Advancement of Learning," in which the "diseases and errors of learning" are described. Harvey also appealed to observation and experiment. "We must not," says he, "rely upon other men's experience, but on our own." "Every perfect science builds upon these principles which it finds out by sense," but "we must have a special care that we be sure those principles are safely grounded." "For want of this," he says, "we have many sophisters and book-wrights, but few wise men and philosophers."

The great and original merit of Harvey's work on generation lies in the careful and methodical observation and record of the embryo and fœtus at all stages. Harvey did for development what the illustrious Paduan Professor Morgagni subsequently did for disease in his "De sedibus et causis morborum" (1761). The chapter on labour (De Partu) deals with the subject from a scientific and practical point of view. The scientific part consists in criticism of previous opinions in the anatomy and physiology of the fœtus and of parturition based on his own observations. The practical part gives evidence of extensive personal experience in midwifery and is in the main devoted to the recommendation of patient watchfulness and gentleness, imitating Nature in ordinary cases and podalic version in difficult ones.

England was not only the last of the great countries to produce a writer on midwifery, but was equally tardy in the recognition and regulation of its practitioners. In 1616, the year in which Harvey was propounding his immortal discovery of the circulation of the blood, Peter Chamberlen ii. made a petition to King James that some order might be settled by the State for the instruction and civil government of midwives; but nearly 300 years were to elapse before the desirable result was obtained, in the Midwives Act (1902), through the persistent efforts of the Obstetrical Society of London. Harvey inveighs against the meddlesome officiousness of the midwives Another distinguished obstetrician, his friend Percival Willughby, writes more fully of their shortcomings and misdeeds, and testifies to the value of Harvey's teaching in the following words: "I know none bu Harvey's directions and method, the which I wish al midwives to observe and follow and oft to read ove and over again; and in so doing they will bette observe, understand and remember the sayings and doings of that most worthy, good and learned docto whose memory ought to be had for ever in grea esteem with midwives and child-bearing women."

The first books of the Obstetric Renaissance in Germany, France, Italy and England achieved thei object of being widely read by midwives, as we learn from the history of Louise Bourgeois and Justin Siegemundin. The book introduced them to th wisdom of the ancient writers, and in the cases of Pa and Mercurio to methods of treatment which had bee long neglected and forgotten. England was fortunat in having as the father of English midwifery, Harvey who introduced into that branch of medicine the wid view, the scientific spirit, and the conservative practic which have been its characteristics. It was Harvey' inculcation of patience and gentleness in imitation o Nature, adopted by Smellie and Hunter, which mad such a strong impression on Boër, the founder of th great Viennese School of Midwifery, who, after studying in France and England, adopted the Britis practice "having learnt in France what Art, i England what Nature, could do."

The purely British operation of induction of pre mature labour for cases of contracted pelvis can b attributed to the same conservative spirit. And if w add the discovery of the fœtal circulation by Harvey of the forceps by Chamberlen, of chloroform b Simpson, and of the antiseptic system by Lister, or may claim for British medicine that, though it wa last in producing a writer on obstetrics, it has not bee least in conferring benefits on parturient women.

THE LATE DR. R. R. HARPER.—Robert Russe Harper, L.R.C.P. Lond., L.S.A., who died at his residen at Westgate-on-Sea, Kent, in his seventy-first year, was a old student of St. Thomas's Hospital Medical School ar qualified in 1875. On qualifying he joined his father practice at Holbeach, Lincolnshire, where he led an acti professional life for many years. On the outbreak of th late war he offered his services to the War Office and w subsequently attached to the No. 1 Birmingham W Hospital, where he worked till ill-health compelled him resign. After recuperating his health he was appoint resident medical officer of the Pensions Hospital, Birmingha and on retiring from that position spent some time in tra in England and in 1920 settled down at Westgate-on-S Early this year he underwent an operation from which never really recovered, and he died peacefully in his slee He played Rugby in his early days for his school and w instrumental in organising the first Inter-Hospitals C Competition. Dr. Harper leaves a widow and two sons.

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[16] Sir Thomas Barlow: Harveian Oration, 1916, and footnote; H. R. Spencer: Harveian Oration, 1921.

[17] The latest portrait is a "white-line" wood engraving of the Canterbury portrait by Horace Gerrard; the first pull from this plate is in the Library of the Medical Society of London.

[18] He was made a Fellow of the College in 1659.

SPONTANEOUS SPLENIC RUPTURE IN MALARIAL TREATMENT.

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IN a recent number of THE LANCET [1] appears an annotation describing the occurrence of spontaneous rupture of the spleen in artificially induced malaria in a general paralytic. The case, which was recorded by Alexander in *Le Scalpel*,[2] underwent with apparent impunity eight rigors but then collapsed suddenly on his bed. He was found to be dead. At the autopsy it was found that the spleen, which was soft, had ruptured.

With the object of endeavouring to determine whether spontaneous rupture of the spleen would with any frequency be likely to occur in enfeebled general paralytics, or whether it will be sufficiently rare to remain merely a clinical curiosity in the history of malarial treatment, some observations, described in this paper, have been made. In naturally acquired malaria rupture of the spleen may be due to trauma, for instance, a blow or an exploratory puncture (Osler),[3] or it may be spontaneous. The organ is enlarged and, in acute cases, soft, and presumably spontaneous rupture is due to the organ having increased in size to such an extent that any extra strain causes the rupture to occur. This extra strain might be due to pressure upon one part of the structure causing an increased tension in the remainder, or possibly to the rhythmical contractions which occur about once a minute in the organ (Halliburton).[4] Now if the spleen of the general paralytic is large before the inoculation with malaria it would be expected that there would be an appreciable risk of rupture during the rigors when the spleen enlarges. If, in addition, the organ were soft the risk might be serious, for a soft organ would be more likely to rupture than would a firmer structure.

The Spleen in the General Paralytic.

In order, therefore, to endeavour to determine whether the spleen of a general paralytic is more likely to rupture during malarial rigors than is the spleen of a normal person, it is necessary to know whether the organ is enlarged and soft in the paralytic. The weight of the spleen in health is given as being from 142 to 198 g. by Sims Woodhead,[5] as being from 150 to 200 g. by Hewlett,[6] and as about 200 g. by Howden.[7] The weight of the spleen in general paralysis, however, tends to be below these figures, as is shown by the following table, constructed from the post-mortem accounts of 50 general paralytics who have died during the last two and a half years at Claybury Mental Hospital, both males and females being included.

Weight in grammes.	Number of organs.	Weight in grammes.	Number of organs.
75	1	140 to 159	9
80 to 99	13	160 to 179	4
100 to 119	11	210	1
120 to 139	11	—	—

The consistency of the spleen may be described as being harder than normal, normal, or softer than normal. The post-mortem records of the same series of spleens showed the following:—

Hard, 33. Normal, 9. Soft, 8.

Thus, as shown by this series, the spleen in general paralysis is usually harder than normal.

Now in 80 autopsies performed upon cases of chronic malaria, Kelsch and Kiener [8] found that the weight of the spleens varied from 400 to 1500 g., averaging 914 g. As these autopsies were on cases of chronic malaria the spleens would be fibrotic and firm. Therefore it is clear that a fibrotic spleen in a subject whose spleen would normally weigh from 140 to 200 g. is exceedingly unlikely to rupture, even although it increased in weight to well over 400 g. As the majority of the spleens in the 50 general paralytics examined were fibrotic and, in addition, weighed under 159 g., the probability of rupture must be even less than in normal individuals whose spleens weigh from 150 to 200 g. It is interesting to note that the large proportion of small fibroid spleens is in agreement with the fact that syphilis causes chronic inflammation of the organ (Bosanquet and Wilson).[9]

Risk of Rupture in the General Paralytic.

From the pathological evidence, therefore, it would appear that the occurrence of spontaneous rupture of the spleen in general paralytics treated with malaria must be even more infrequent than in non-paralytics suffering from malaria, in whom the accident is very rare (Osler).[3]

Although the pathological evidence points very strongly to the occurrence of spontaneous rupture of the spleen as being a very rare phenomenon in general paralytics, it is to the clinical evidence that we must turn for definite information as to whether the risk of rupture is very grave. On reference to the literature, no note as to the occurrence of splenic rupture has been found in the description of 84 cases of malarial treatment dealt with by Yorke and Macfie,[10] of 14 cases described by Worster-Drought and Beccle,[11] or the 12 cases observed by McAlister.[12] In addition, no instance of rupture has occurred in the 39 cases treated with malaria at Claybury Mental Hospital, although many of the patients were old, feeble, and bed-ridden. Although no definite statement can be made as to the frequency with which spontaneous splenic rupture is likely to occur in general paralytics treated with malaria until a far greater number of cases have been watched, it would appear from both the pathological and the clinical evidence that the condition must be exceedingly rare and the risk of rupture in any individual person negligible.

The above observations refer to spontaneous rupture only, not to injury caused by trauma. The frequency of occurrence of the latter would be determined by the restlessness of the patients, the skill of the nursing staff, and similar factors.

In conclusion, I wish to express my thanks to Dr. G. F. Barham, Medical Superintendent of Claybury Mental Hospital, for permission to publish the above facts from the records of the hospital.

Addendum.

Since the above was written the investigations carried out by Bigland, Watson, and Bigland [13] have been published. These observers found an increase of fibrous tissue in the spleens of all but nine of 399 subjects examined, thus giving a higher percentage (97·6 per cent.) than was obtained from the Claybury records (66 per cent.). In both series of figures male and female general paralytics are included.

In three subjects the condition of the spleen following malarial treatment has now been observed. In each instance the cessation of the malarial paroxysms had occurred more than three months before the death of the patient. Two of the organs weighed 200 g. each, the third 100 g. In each organ the splenic pulp was very soft and "mushy" with a purplish tint. In addition, in two of the three spleens a large amount of fibrous tissue was present, causing a very marked grating sensation on cutting into the organ. The structures therefore showed an unusual combination of excess of fibrous tissue with a very soft pulp. A soft "mushy" pulp is very rare in untreated general paralytics.

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(*Continued at foot of next page.*)

A CASE OF
CONGENITAL MALARIA OCCURRING IN ENGLAND.

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AND
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As some divergence of opinion still exists on the possibility of direct transmission of malaria from the mother to the child, an account of a case which occurred in England may be of interest.

The literature on the subject of congenital malaria contains views and statements which are diametrically opposed. On the one hand we have the opinion of Rosamond[1] (1923) that hereditary transmission of malaria does not take place. Hitte[2] (1909) has described malaria parasites in the blood of the umbilical cord in two cases, but in the article on Malaria in Allbutt and Rolleson's "System of Medicine" Prof. W. S. Thayer pronounces the evidence unconvincing. Grabham[3] (1904) daily submitted to prolonged and repeated search the blood of infants born of malarious mothers, who at the time of birth were heavily infected with both malignant and quartan parasites, but failed to find them or any evidence of malaria, and he concludes that the cases mentioned by Dinstl[*] and others must have been bitten by mosquitoes after birth, although he states that hæmorrhages may possibly take place in the placenta and let loose a number of parasites into the fœtal circulation. Pennato[4] (1921) cites the case of a mother who died at childbirth from malaria whilst the fœtus was apparently free from the slightest indication of it, and concluded that the protecting action of the placenta evidently varies from case to case. This author quotes the observation of Ugo Soli, who reports the protection of the fœtus from acute mercury poisoning which was fatal to the mother. Pennato remarks that our knowledge of the functions of the placenta is not yet sufficient to warrant any dogmatic conclusions as to why malaria sometimes is and at other times is not transmitted to the offspring of infected mothers.

Previous Records.

We now come to a series of cases in which the probability of congenital malaria having occurred seems to have been established.

Forbes[5] (1923), in recording a case in which quartan malaria occurred in an infant in a district in which anopheles had never been found, draws attention to the rarity of intra-uterine infection with the malaria parasite, stating that up to 1910 Beekel found only 12 examples of undoubted placental transmission of malaria on record, and that since then 15 more conclusive cases have been published. He concludes that symptoms appeared at various stages, the longest postnatal interval being seven weeks. A new-born child may, therefore, have a relatively latent type of malaria, and it is probable that some at least of the cases of malaria in infancy, hitherto attributed to postnatal infection, were in reality acquired in utero or at birth. Weston[6] (1922) states that he has seen malaria in an infant five days old, and Cuadra[7] (1920) records a case in which the mother had a malarial history with typical chill and fever two days after the child was born, the child's temperature rose at the same time to 104° F., and *Plasmodium vivax* was cultivated from the blood of both mother and child. Clark[8] (1915), in a study of 400 cases, found that the placental blood showed malarial parasites in 19 cases, whereas the maternal peripheral blood only showed infection in eight cases. Thus the placental blood revealed malaria in 11 cases in which the peripheral blood was negative. Out of these cases the blood from the umbilical cord only showed infection in one case. These observations bear out the view that, under normal conditions, the maternal and fœtal bloods never come in contact.

From the foregoing it would appear that although direct transmission is apparently possible it is a very rare occurrence. The case in which there is little doubt that it was one of direct transmission is as follows:—

Account of a Case.

The mother, who had returned to England from a visit to the continent, and had never been further east than Venice, gave a history of irregular attacks of fever during the last two months of pregnancy. The diagnosis in this case was somewhat obscured by the fact that there was a marked bacilluria with some of the symptoms attending that condition. On the day after a full-term child was born the mother's temperature rose to 104° and splenic enlargement up to three fingers-breadth was present. On examination of the peripheral blood a fairly heavy infection of benign tertian parasites was found. The temperature of the child remained within normal limits until the sixteenth day, when it rose to 104·8°, there was a marked icteric coloration of the skin, and on examination of the finger blood a heavy infection of benign tertian parasites was seen. Numerous gametocytes were present, as many as four being found in one field. Both the patients responded satisfactorily to quinine.

This case occurred in Buckinghamshire, and we are not aware of the presence of any anopheles in this particular locality. Although in the case of trypanosomiasis there is a possibility of infection of the child through the milk, it seems unlikely that infection in this case took place in this way, and judging by the time required for the development of the numerous gametocytes present the most obvious assumption is that this is a case of congenital malaria.

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[*] New Sydenham Society, cl., 415.

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THREE CASES OF
FUNCTIONAL MENTAL DISORDER DUE TO TOXÆMIA FROM THE BOWEL
IN WHICH DECEPTIVE SIGNS OF ORGANIC DISEASE EXISTED.

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The subject of intestinal toxæmia has of recent years attracted attention, with the object of confirming or refuting the claim that it is an important factor in the causation of disease. It is hoped that the three cases to be described will confirm the importance of toxæmia in producing symptoms and signs of disease affecting particularly the nervous system. Although the response to treatment in each case shows that the symptoms were due to disordered action of the bowel, it is to be carefully noted that when these cases came under observation the symptoms were more than suggestive of organic disease.

A Case of Hypochondriasis.

Intestinal hypochondriasis is a fairly common complaint, chiefly found in people past middle life. Although, like hysteria, hypochondriasis is only a name applied to a syndrome of subjective symptoms where actual disease cannot be found, it is the duty of everyone to try and find a physical basis for these symptoms. In the following case of hypochondriacal melancholia a definite physical cause was discovered, thus affording striking evidence of the value of the employment of every possible method of examination when dealing with cases whose symptoms appear to be solely subjective.

The case is that of a female, aged 63 years, in whom there s a history of a previous attack of melancholia nine years ago, but no inherited mental instability. On admission to hospital on Dec. 20th, 1923, her mental symptoms consisted more of apathy than of depression. Mentation and conversation were sluggish, but there was no disorientation. Physically she was undernourished, her weight being 6 st. 6 lb. No gross physical disease was discovered except a slight thickening of the radials and a decided distension of the abdomen. The urine was free from albumin and sugar.

The subsequent history of the case is as follows. On account of the abdominal distension, and remembering the requency with which constipation is associated with acute mental disorder as first seen, this patient was given an ordinary enema followed by a saline purge. These measures proved effective, and next day there was marked improvement in the mental state, with almost complete disappearance of abdominal distension. Attention was again drawn to the patient seven days later by the reappearance of mental symptoms in the form of excitement, mild restlessness, and nsomnia. Examination showed that the abdomen was again distended, the patient remarking that she had a "blockage of the back passage." There was tenderness and pain in the region of the middle part of the descending colon. Under the circumstances one was not justified in ignoring the patient's statement about blockage of the back passage. Rectal and abdominal examination gave negative results.

The patient was now placed on a purely milk diet with morning and evening doses of liquid paraffin. There was again decided mental and physical improvement, but a surgeon was consulted as to whether there was any likelihood of a growth in the wall of the descending colon to account or the condition. The surgeon was of this opinion, and a barium meal gave corroborative evidence. There was marked delay in passage through the colon, and it was 54 hours before any of the barium had reached the rectum. In none of the films was any barium seen in the middle part of the descending colon. The patient continued to manifest no mental disturbance while under treatment, and therefore was discharged from hospital one month after admission. She and her relatives were advised to seek surgical treatment in he local general infirmary.

The subsequent history is as follows. She attended the nfirmary for observation and treatment, and in due course the obstruction passed away without the necessity of surgical nterference. On August 18th, 1924, she was visited at her home and was found to be very cheerful and performing her usual domestic work. She informed the visitor that her bowels were acting quite regularly.

The evidence in this case is strongly in favour of a physical basis for the symptoms of hypochondriasis. A toxæmia secondary to the morbid condition of the alimentary tract is the most reasonable explanation of the mental symptoms, especially in a constitution ikely to be more susceptible on account of a former attack of melancholia.

A Case of Toxic Psychosis Simulating Clinically General Paresis.

This case is interesting for two reasons. It shows, first, how important it is to search for every possible source of toxæmia in every patient under treatment for mental symptoms, and second, the value of employing every means of investigation, including that of the laboratory, to enable a satisfactory differential diagnosis to be made.

The patient is a female, aged 52 years, married, and uffering from a first attack of mental disorder, the duration of which is given as six weeks. She was admitted to hospital on Jan. 22nd, 1924. From the medical certificates accompanying her admission we learn little except that her husband states that he has noticed a loss of memory. The family and personal history is interesting. Her parents died in old age, although her father was given to drinking heavily. Patient had one child who died in infancy, and had one miscarriage. She herself is a seven months child, was anæmic at puberty for two years, had suffered on two occasions from rheumatic fever, and had gastric trouble for 20 years, which is reported to have commenced with a hæmatemesis. There is also a history of a definite physical stress. She was on her husband's ship at the time this was torpedoed in 1917. The patient has lived for several years alone during her husband's absence at sea, and during that time has indulged freely in alcohol, consuming at least two bottles of whisky per week. The relatives noticed that for seven months prior to admission she was unsteady on her feet, and suffered from pains in the legs, feet, and fingers, and from vomiting at irregular intervals. This information was not available for over a week, and meanwhile the patient was subjected to a general physical examination, the alimentary tract radiographed, and the usual serological tests performed in the blood and cerebrospinal fluid.

Physical examination revealed the following phenomena. She was extremely emaciated, and her skin so sallow as to resemble some degree of bronzing. Her fingers and toes were cyanosed, with some patches of local anæmia. Nothing abnormal was found in the rsspiratory system. Beyond a decided impairment in the force of the heart's beat nothing of note was found in the circulatory system. The radial arteries were not thickened, and the systolic blood pressure was 122 mm. Hg. The abdomen was retracted, and on pressure definite tenderness was elicited in the epigastrium and along the course of the colon. The knee-jerks were practically absent. The pupils were normally placed and of regular outline, but failed to react to light, direct and consensual. There was a decided tremor of the tongue. Some impairment of articulation and blurring of test-words may partly be accounted for by the absence of teeth. As far as it was possible to test cutaneous sensibility, anæsthesia to pin-pricks was found below the knees. Foot-drop was not present. Patient was ataxic and was unable to walk without falling. During the fortnight after admission it was not possible to get any information or help from the patient on account of the extreme degree of mental confusion present.

Two days after admission the alimentary tract, following a barium meal, was radiographed. This examination showed that the stomach was so proptosed as to be lying deep in the pelvis, was atonic, and showed delay in emptying. There was stasis at the ileo-cæcal junction. Marked stasis was evident in the colon with spasticity of the splenic flexure and descending colon. The Wassermann test was negative in the serum and cerebro-spinal fluid, and in the latter the Ross-Jones test was negative.

Differential Diagnosis.—Excluding the family history and the results of the serological examination, the symptoms made one think of two possible pathological conditions —namely, a toxic psychosis and general paresis. There were several symptoms present which are common to both these conditions—e.g., absence of knee-jerks, tongue tremor, ataxia, as well as the mild degree of mental exaltation that developed during the first week of residence in hospital. In favour of a toxic psychosis, in addition to the symptoms just mentioned as being common to both conditions, there is the peripheral anæsthesia, the emaciation, the sallowness of the skin, the result of the radiological examination, and the negative serological findings. The history of excessive consumption of alcohol and of 20 years gastric trouble strengthens the diagnosis of toxic psychosis. The condition of the pupils is especially interesting. This is one of the few reliable physical signs found in general paresis. Here the loss of the light reflex was clearly due to some cause other than organic disease of the central nervous system. Besides the toxæmia due to the consumption of alcohol, there is no doubt that the alimentary tract has given rise to toxæmia. The progress of the case will bear this out.

Acting on the view taken that this patient's condition was due to toxæmia, not only alcoholic but alimentary, measures were taken to remove the latter by systematic lavage of the colon, which proved to be urgently required. The former source of toxæmia was easily eliminated by her stay in hospital. A fortnight after admission progressive improvement in the gait and locomotion was noted, the knee-jerks returning, and the pupils again reacting to light. Coincident with these changes there was a corresponding improvement in her mental condition. She was discharged recovered on March 18th, 1924.

In July, 1924, when she was seen again, she was quite normal in every respect, spontaneously remarking that she had never felt better for 20 years, a statement immediately corroborated by her husband.

A Case of Functional Mental Disorder Resembling a Case of Organic Nervous Disease, in whom Alimentary Toxæmia is an Important Causal Factor.

The patient is a female, aged 39 years, married, and the duration of the illness is given as nine months prior to admission. This is her first attack of mental disorder. She was admitted to hospital on Oct. 12th, 1922, and discharged recovered on Jan. 23rd, 1923.

The family history reveals a neurotic heredity. A sister has been weak-minded from childhood, another died from tuberculosis, and a maternal uncle was excessively alcoholic. The personal history is uneventful until two years before the onset of the present mental disorder, when she commenced to suffer from what was described as indigestion. The mental disturbance commenced with depression, and she suffered from the morbid fear that she would get beyond her own control. Prior to admission patient developed weakness of the lower extremities and was unable to walk steadily.

On physical examination patient was found to be generally reduced in health and had marked pallor of the skin. After admission she was too confused to give any account of herself or to help in the examination. The respiratory and circulatory systems were normal. There was no enlargement of the thyroid gland. Tremor of the tongue was absent. The deep reflexes were exaggerated and equal on the two sides. The gait was unsteady and patient could only walk with difficulty. Speech was defective with certain test-words. It was impossible to test coördination and muscle sense. The pupils failed to react to light, both direct and consensual. Her teeth appeared to be good. The bowels were constipated. The urine showed no abnormal constituent. The Wassermann reaction was negative in the serum and cerebro-spinal fluid, and the Nonne-Apelt test also negative. A fortnight after admission she was sufficiently recovered to enable a radiological examination to be made. This demonstrated marked atony of the stomach with proptosis, delay at the ileo-cæcal junction, and extreme stasis in the colon, with spasticity.

Differential Diagnosis.—In the first place the symptoms resembled in many respects those found in organic nervous disease, and until the serological findings were known it was impossible to exclude the possibility of general paresis. As in the previously mentioned case, the pupillary light reflex was lost and the gait unsteady. Only one possible focus of toxæmia was discovered—namely, the morbid condition of the alimentary tract. The neurotic inheritance is an additional element in this case, and is probably of primary importance, the toxin inciting mental disorder in a constitution hereditarily weakened. It was agreed that this was a case of toxic psychosis.

Progress of Case.—Treatment consisted in the administration of intestinal antiseptics—kerol in capsules thrice daily, intestinal lavage, a milk dietary, and in the later stages diathermy. Shortly after admission patient very nearly developed acute intestinal obstruction, and for about three weeks the bowels failed to act in response to enemata. When this yielded to treatment there was a coincident improvement in her mental condition. Within a week of this, patient was able to be out of bed, and the power of walking progressively returned to normal. During the following month patient became quite well mentally and was discharged from hospital fully recovered after a residence of two and a half months.

For over a year after her discharge she was kept under observation through the out-patient psychiatric clinic at the Cardiff Infirmary under the direction of Colonel E. Goodall. She maintained excellent health during that time, showing no evidence of mental disorder.

Deductions.

The following deductions can be made from the study of these cases :—

(1) The nervous system is susceptible to the influence of toxæmia either of exogenous or endogenous origin.

(2) Toxæmia of intestinal origin is more frequent than is generally accepted, its deleterious action being more easily produced and more marked when the general health is either reduced by previous illness or the powers of resistance impaired by such agencies as heredity, personal neglect and malnutrition, and unhealthy environment.

(3) Provided the toxæmia has not produced definite organic changes, it is quite safe to give a good prognosis. When recovery is complete an attempt should be made to explain to the patient how the illness was caused, in order to ensure a more satisfactory mode of living and at the same time considerably lessen the chances of recurrence.

In conclusion, I desire to thank Colonel E. Goodall, medical superintendent, for permission to publish these notes, and for valued criticism during their compilation.

IRON DEFICIENCY AND ITS POSSIBLE RELATIONSHIP TO HUMAN DISEASE.

BY J. P. McGOWAN, M.D., B.Sc. EDIN.

(From the Rowett Research Institute, Aberdeen.)

IN previous communications[1] an important and widespread disease in young pigs has been described. This has been shown to be ot the nature of an anæmia of the chlorotic type, induced by a lack of iron in the milk of the sow. The milks of all animals, especially when subjected to artificial selection and rearing, ideal as they are as a food in other respects, have this drawback in common, that they are relatively poor in iron.[3] In young, fast-growing animals, such as the suckling pig, living for a time entirely on milk, the effect of this deficiency can be readily seen. The consequences, however, can be kept in check by causing them, by one means or another, to ingest ferric oxide during the period when they are entirely dependent on their mother's milk—i.e., during the first three weeks of life. Iron deficiency, apart from causing death in an acute form and the production of "wasters," forms the basis for the appearance of cotton-seed meal injury or poisoning, a condition which has greatly hampered the utilisation of cotton seed as a food for pigs in the United States.[2]

In the investigation of iron deficiency in pigs some points have been elicited which may have a bearing on human pathology. It is proposed to indicate these briefly.

The Ætiology of Chlorosis.

It has already been stated that the disease is of a chlorotic nature. While mild cases do occur, the fatality of the condition and the degree of the pathological changes may be much greater than are those usually associated with chlorosis in human beings. The disturbances, however, are of the same nature, and their severity may be somewhat discounted in the comparison if one takes into consideration the difference in age period and growth potential of the suckling pigs and the fact that advanced cases of chlorosis are rare, and those examined post mortem rarer still. Clifford Allbutt,[4] in an exhaustive survey of the literature, subjects the conditions alleged to have a bearing on the ætiology of chlorosis to a minute examination, and, as a result, concludes that chlorosis is part and parcel of the changes that occur in women at puberty. Every girl, he thinks, may be regarded as potentially chlorotic, and perhaps, he suggests, none pass through womanhood without some phase of the disorder showing. Lloyd Jones[5] thinks that chlorosis is the exaggeration of a fertile blood—of blood, that is, which has for its end the storage of nutritive material for the fœtus during pregnancy. The changes in the blood in chlorosis he thinks, are an extreme fluctuation of a physiological quality of the child-bearing period of life He suggests that the immediate cause may be a profusion—a toxic excess—of an internal secretion from the sexual glands. Campbell,[6] as the result of an elaborate study of cases at Guy's and other hospitals in Britain, comes to much the same conclusions as the authors just mentioned. These views, while indicating the important part that sex and puberty play in the origin of the disease, would appear to be somewhat fatalistic, regarding chlorosis at any rate in its mild form, as necessary, and not an evil, in the sense that it forms part of the essence of fertility. These opinions, however, seem to be discounted by the great decrease of chlorosis within recent years,[6] without there being anything to indicate that fertility has been reduced at the same time.

The disease may be regarded from another angle and another theory of its nature suggested Stockman[7] has shown that the habitual diet of certain chlorotics, which he examined, was very poo in iron. Baillet[8] has shown that in women a puberty, as compared with men of the same age, there is a critical fall of the amount of iron in the liver. Having regard to the known facts, this cannot mean that less iron is required, but either that iron is being used up at a greater rate or that less iron is being absorbed. In the iron deficiency in pigs it was very noticeable that the more rapidly growing pigs, in which metabolism would be proceeding at greater rate, were most severely affected with the disease. It is usually assumed that increased metabolic activity, associated with the development of various organs, characterises puberty.[9] Various explanations have been given for the great decrease in the occurrence of the disease within recent years, noted by all recent writers (Price,[10] Campbell (loc. cit.)). Having regard to the points just enumerated and in consideration of the dual function of iron in the body referred to later, chlorosis might be regarded as the expression of a real lack of iron in the tissues of the body. It could be supposed that the changes at puberty might produce an increased demand for iron in the tissues to cope with the increased metabolic activity at this time. This might not be forthcoming in the habitual diet, in which it may be assumed no change has been made to meet the onset of puberty. This could initiate a condition of ill-health, characterised possibly by indefinite symptoms, among which almost certainly would be a diminished or depraved appetite, which would lead, on its part, to a further diminished intake of iron. There would thus be initiated an ever-widening vicious circle by means of which the disease condition would become more and more stabilised or fixed owing to organic changes, due to the lack of iron, taking place in tissues such as the liver, more fixed in type and less labile than the blood.

In this connexion attention may be drawn to the tendency for remissions to occur in chlorosis and to a possible explanation in terms of what has just been said. The hæmoglobin of the blood can easily be restored to normal by the administration of iron. The patient, however, is not necessarily cured when this has been accomplished, and a prolonged course of iron administration is usually found to be necessary. The reason of this may be that the more or less fixed, or more differentiated tissues of the body, having been disorganised by the lack of iron, require a prolonged treatment with it before they can be brought back to a normal condition. Hence the liability for the disease to recur. It will be seen that, in the view expressed here regarding the disease, emphasis is laid not on the lack of iron in the blood, but on the lack of iron in the tissues. With regard to the decrease of the disease in recent years, it could be argued that the changed outlook on life in women, approximating more and more to that of men, has much to do with it. Athletics, outdoor life, &c., by their effect on appetite, together with an improved public opinion as to what constitutes suitable food, might render it less likely that the onset of puberty would be caught, so to speak, unawares in the vicious circle referred to above.

Iron Deficiency and Rickets.

It is possible that iron deficiency may play a part in the production of the *symptôme complexe* of rickets. In this condition there are, in many cases, enlargement and fatty change in the liver, secondary anæmia—in some cases so profound as to resemble that present in chlorosis, and the subjects of the disease are often abnormally fat (Hutchison[10])—all occurrences which are found to a marked degree in iron deficiency in pigs. Milk is very poor as regards its iron content, and the various artificial foods so prone to cause rickets are poorer still.[11] It is not, however, suggested that the lack of iron, of itself, causes rickets, but the view is put forward that it may, by simple addition, modify considerably the picture of the disease as it is seen clinically. If regard, however, is had to the importance of iron in ultimate tissue metabolism, it may quite well be that the picture is not one of the simple algebraic sum of rickets and chlorosis. They may interact, and mutually aggravate one another. In this connexion, and as an instance of how the two conditions may clash locally, may be mentioned the changes occurring in relation to bone in these two diseases.

Pathological Changes in Iron Deficiency in Pigs.

The pathological changes, present in iron deficiency of pigs, include in varying degrees of intensity and in varying combinations the following: anæmia, enlargement of the heart, effusion of fluid into the various serous cavities, and fatty change and necrosis of the lobules of the liver. In the earlier stages of the disease, which may, however, be severe enough to cause death of the animal, there may be present nothing more than anæmia, enlargement of the heart, and effusions into the various cavities. Such cases have a considerable resemblance to those of wet beri-beri in human beings, and it is a suggestive fact in this connexion that whereas rice bran contains 0·232 per cent. of iron, polished rice contains only 0·003 per cent.[11] Beri-beri is usually attributed to a lack of vitamin B, but it may quite well be that the ætiology of wet and dry beri-beri are different, and up to the present there is no proof that they are the same.

On the other hand, in the advanced cases of the disease, the changes occur principally in the blood and blood-forming organs, and in the liver. Advanced anæmia of the chlorotic type is present, while the liver is greatly enlarged and altered. The individual lobules are either in a state of advanced fatty change or have been destroyed for the most part and their place taken by blood. On regeneration the liver shows cirrhotic changes.[12] Such cases resemble those of toxic jaundice due to poisoning with such substances as tri-nitro-toluene, &c. (Panton,[13] Stewart[14]), where the brunt of the action also falls on the liver and the blood (Wyon[15]). From such considerations as these the suggestion might be made that such poisons produce their effect by putting the iron in the tissues out of action.

Roger [16] has emphasised the dual action of iron in the body—as a constituent of hæmoglobin, and also as taking a part in the life functions of every cell in the body and especially of the liver cell. The conditions found here would appear to support and emphasise this view, which again, vouched for by an authority like Roger, has been used in the explanation of some of the phenomena dealt with above.

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VOCAL THERAPY SOCIETY.—An address will be given at the Royal Hospital, Chelsea (Governor's House, East Gate), on Wednesday, Nov. 26th, at 5 P.M., by Sir Henry Hadow, Mus.D., Principal of Sheffield University, on the Healing Influence of Music exemplified in medical treatment combined with the Vocal Therapy Society's training in concerted singing. Lord Blanesburgh will take the chair. Members of the King's Services Choirs from Ewell Ministry of Pensions Hospital will sing. Free tickets for admission may be had on application to the Secretary, V.T.S., 27, Grosvenor-place, S.W. 1.

ON THE INFLATION TEST FOR TUBAL PATENCY

AND A SIMPLE INSTRUMENT FOR CARRYING IT OUT.

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THE test for tubal patency by inflation from below in cases of sterility is now commonly employed in the United States, and is gradually being taken up in this country. The apparatus favoured in America, an example of which was demonstrated at the annual meeting of the British Medical Association last year,[1] consists of an arrangement whereby carbon-dioxide gas can be passed into the uterus through a tube to which is affixed a cone-shaped indiarubber obturator. This obturator is kept firmly pressed into the external os, whilst the gas is being injected so as to prevent its backward escape. A manometer is attached to the apparatus, and the pressure shown indicates whether the gas is freely passing into the peritoneal cavity or not. If the tubes are patent a pressure not much over 100 mm. of mercury should be registered. Confirmation of the passage of the gas can be obtained: (1) by hearing through a stethoscope the gas escaping from the abdominal ostia; (2) if the patient is not anæsthetised and sufficient gas be introduced, by her complaining of pain in her right shoulder due to vagus disturbance, a proceeding which does not commend itself to me; and (3) by examining the abdomen with the fluoroscope after injecting a considerable quantity of gas into the peritoneal cavity.

My colleague, Arthur Gray, pointed out to me that such an elaborate apparatus was not necessary, and that equally reliable results could be obtained by injecting air by means of a simple rubber bulb, attached to which was a metal tube furnished with a rubber obturator. The tube, having been inserted into the uterus and the obturator pressed into the external os, the degree of resistance experienced by the hand compressing the bulb indicated quite clearly, not only whether the air was passing into the abdominal cavity or not, but whether, if passing, it passed with normal ease.

As a result of trying Gray's apparatus I bethought me of a device whereby the obturator could be dispensed with, for it was difficult entirely to prevent the injected air leaking past the obturator when the cervix was deformed, and it was impracticable to keep the obturator pressed against it with the abdomen opened in the Trendelenburg position, though, as I shall presently show, it is most desirable to be able to inject air under these conditions.

The instrument I had made consists of one-half of a Fenton's dilator, size 7, with a channel running through it from end to end, closed during the introduction by a stylet. Attached to the dilator by means of an air-tight push-joint is a rubber tube and bulb, which by a T-piece connects with a manometer, like that used with a sphygmograph. (See Fig. 1.)

Method of Use.

The method of using it is as follows: Under anæsthesia the cervix is dilated in the usual way, but instead of the ordinary No. 7 Fenton being used, the perforated dilator is introduced instead. The stylet is then withdrawn, and the rubber tube, bulb, and manometer is attached to the proximal end of the dilator. The bulb is then steadily compressed with the hand, and the resistance encountered is noted on the manometer. Such is the pressure of the cervical wall against the dilator that no air escapes backwards between them, even under strong pressure. The point to be ascertained is whether the bulb can be emptied without undue exercise of force for, if it can be, then the air must have passed into the peritoneal cavity. It is quite unnecessary, and in fact undesirable, to empty the bulb more than once.

In practice one of four things happens:—

1. *The bulb is emptied without any difficulty, the pressure not rising much above 100 mm. at any time and falling to zero by the time the bulb is empty.*—This indicates that one or both tubes are freely patent; a finding which in a case of sterility at once contra-indicates any abdominal operation having for its object the opening up of the tubes.

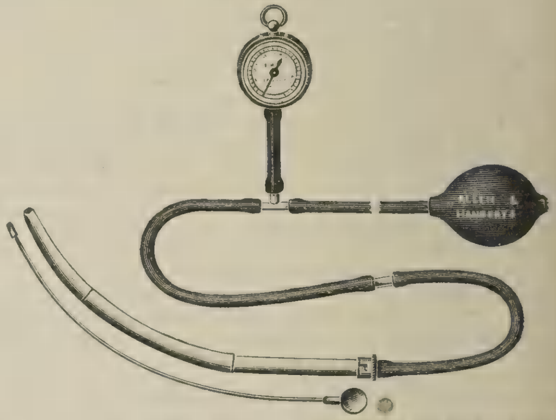
2. *The bulb cannot be emptied, although the pressure is raised to 200 mm.*—Above this it is not safe to go, for fear of rupturing the tubes or uterine cornua. Such a finding shows that both tubes are blocked, and in a case of sterility indicates that an attempt should be made to reopen them through the abdomen. A small amount of air can be forced into the uterus by distending its cavity, but not enough nearly to empty the bulb. I have been able to observe what happens when the uterus is inflated under these circumstances and find it is the cornua which distend, the uterine wall in these regions being relatively thin and stretchable.

3. *The bulb empties but with difficulty, the pressure required being well above 100 mm., but when emptied the pressure falls to zero.*—This shows that there is a partial block, the air escaping into the peritoneal cavity very slowly. In a case of sterility here, as in the preceding, an abdominal operation is indicated.

4. *The bulb empties with difficulty, the pressure required being well above 100 mm., and when empty the manometer continues to register a definite pressure.*—This shows that the air has distended a tube closed at its abdominal end only, the pneumo-salpinx thus formed acting like the compressed bulb and continuing to maintain the pressure. An abdominal operation is indicated.

The dilator, the bulb, and the tubes are sterilised by boiling, the manometer being subsequently attached by means of a separate unboiled section of tube. It might be suggested that the injection of air carries with it the risk of infecting the tube with air organisms. A moment's consideration will show that if there was such a thing as air-borne septic infection no surgical operation would be safe. As a matter of fact, the experiments carried out by Andrews some years ago showed that air, when collected from such a crowded thoroughfare as Oxford-street, does not contain the organisms of common sepsis. It is probable that every time uterine dilators are used a certain amount of air is forced into the tubes if their inner ostia be patent. A more cogent objection is the possibility of blowing into the tubes septic organisms derived from the vagina or cervix, and where definite infection of these is present inflation should certainly not be carried out, nor for that matter dilatation of the

FIG. 1.



The apparatus designed for carrying out the inflation test for tubal patency.

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[1] Gilman Currier: Jour. Obst. and Gyn. of British Empire, vol. xxx., No. 4.

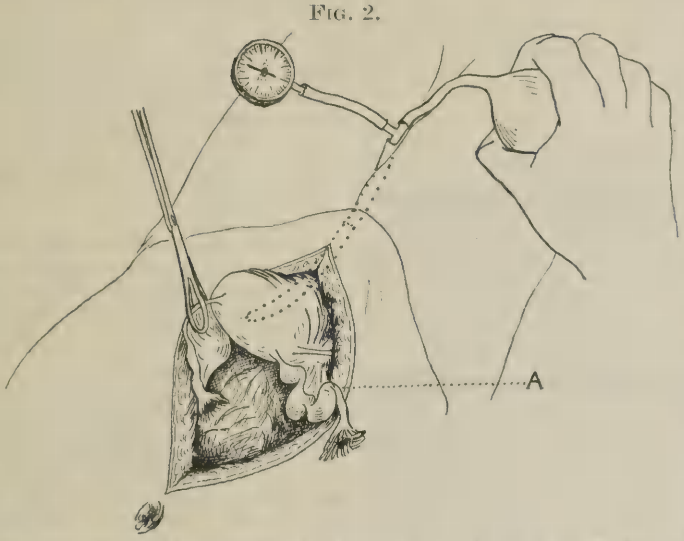
cervix either. For the rest it would appear from the now large experience of American surgeons that infection of the tubes does not occur, and this is what I and my colleagues have also found.

Inflation with the Abdomen Opened.

Suppose, then, that the operator finds either a deficient passage of the air or no passage at all. The dilator with the bulb attached is left in the uterus and secured there by packing gauze into the vagina round it. The abdomen is then opened and the condition of the tubes inspected. A ring forceps is now placed on one of them so as to close it securely, and an assistant then compresses the bulb so that the surgeon can see what happens to the other tube. (Fig. 2.) If the block is at the inner ostium no air at all enters the tube, but if it be further along, the tube will be seen to dilate as far as the block. The ring forceps is now taken off and applied on the other side and the condition of the second tube is investigated in the same way.

The surgeon has now to decide whether he should open up the tubes or one tube only, or neither according to the condition found. I do not propose to discuss the various methods of making a new outer ostium, or of establishing patency when a long length of the inner end of the tube is occluded. Different conditions require different measures, and the surgeon must adapt himself. Suffice it to say, that for some time past I have in most cases simply slit the tube along its free border and continued the slitting until air driven in from below escapes freely into the abdominal cavity. I do not suture the edges of the slit, but simply compress them with a swab and let them lie until all oozing has stopped. In most cases this can be done, and it has the advantage of leaving no foreign-body sutures to cause subsequent adhesion.

Fig. 2.



Testing the right tube with the abdomen opened and the patient in the Trendelenburg position. The tube is obstructed at A.

What Inflation Teaches.

The most important thing that inflation teaches is that in an unexpected proportion of cases of sterility the tubes are not freely patent, although tactile examination reveals nothing apparently abnormal about them. When one comes to examine such tubes through an abdominal incision, the blockage is found to be due either to closure of the abdominal ostia by adhesions, or to stricture, usually multiple, along the course of the tube, or to kinks in the tube. All these conditions are probably, in most cases, the after-results of inflammation, but of inflammation so slight that the patient's past history can be searched without finding any clue pointing to the date of its occurrence. That the original trouble is sometimes tuberculous is proved by the not infrequent finding of tiny nodules on the peritoneal surface of the tube or mesosalpinx, but of so mild and transient a nature must the infection have been that no symptoms were at any time produced. In other instances slight salpingitis, producing no more than a transient stomach-ache, may have followed an infected miscarriage, or have been a sequence to non-venereal streptococcic or staphylococcic cervicitis or even to gonorrhœa. As a rule, however, this is mere supposition, for the history is silent.

It is noteworthy that many of these closed tubes present an appearance so like the normal that close inspection is needed to see the deformity. This particularly applies to kinks. A kinked tube presents a series of slight moniliform dilatations, the sections intervening between which mark the points where the mesosalpinx is shortened. On inflating the tube from below these appearances become very much more marked. The mesosalpinx at the points of shortening often resembles on a minute scale the mesentery of kinked intestine in that it exhibits fine tethering bands.

The mechanism of the production of tubal kinks probably varies. In some cases multiple strictures due to salpingitis lead to dilatation of the tube between the strictures, with elongation of the mesosalpinx at the seat of dilatation and relative shortening at the points of stricture. In other cases local shrinkage of the mesosalpinx is probably the first happening, and this, by kinking the tube, obstructs it and leads to dilatation of those sections not kinked. Finally, both processes may go on together. Whichever way it happens the kinks play a large part in the obstruction, for it often happens that on straightening the tube by pulling and stretching the mesosalpinx, while inflation is being carried out, the obstruction disappears and the air passes through the abdominal ostium.

This leads me to an effect of retroflexion. I am of opinion that this displacement is responsible in some cases for kinkage of the tubes, at first merely by causing them to assume abnormal curves and angles, which later on become permanent owing to organic alterations in the mesosalpinx, a parallel, in fact, to what happens with displaced intestine. It is certain that I have now had several cases in which air refused to pass with the uterus in retroflexion, but passed readily enough directly the displacement was rectified through the abdominal wound. If my observations prove to be of general application, they afford one explanation of the sterility so often associated with retroflexion.

Finally, inflation of the tubes in some cases aids the surgeon in diagnosing the nature of a pelvic mass. As an example, if a swelling is found on either side of the uterus and on inflation the bulb can be emptied, showing that one at least of the tubes is patent, then the mass on one of the sides is not tubal. I had such a case lately which on opening the abdomen exhibited bilateral ovarian blood cysts, the tubes being strongly adherent to the cysts, but in themselves both quite normal and patent.

Fellowship of Medicine and Post-Graduate Medical Association.—A special course in infants' diseases (for medical officers of welfare centres and others) will be given at the Infants Hospital, Vincent-square, Westminster, from Dec. 1st to 13th. The names of qualified practitioners wishing to attend the course (the number will be limited to 15) should be sent to the secretary of the Fellowship at 1, Wimpole-street, W. 1.

Clinical and Laboratory Notes.

CONGENITAL AND ACQUIRED DEXTROCARDIA.

A CASE COMBINING BOTH TYPES.

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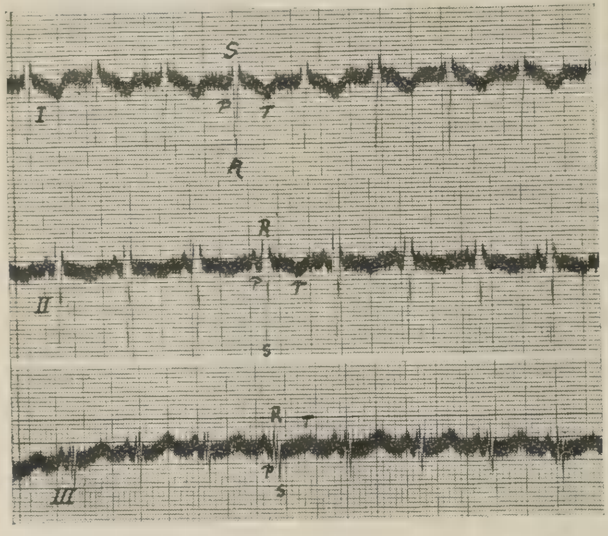
Wallace Jones [1] defines dextrocardia as a "condition in which the heart beats in a more or less permanent manner in the right half of the thorax." Cases of dextrocardia are usually subdivided into (1) inversions, or "mirror image" of the heart; and (2) dextroversions, where the heart is displaced to the right without inversion of the cavities. Inversion of the heart is invariably congenital in origin. Dextroversion may be congenital, but is more frequently acquired.



Electrocardiogram of a case of dextrocardia. Inversion of lead I. and transposition of leads II. and III.

The following case is unusual in that it combines the features of both congenital and acquired types.

The patient, a male, aged 22, was admitted to hospital on August 13th, 1923. His symptoms were cough, sputum at times slightly blood-stained, shortness of breath, night sweats, and slight loss of weight. His previous illnesses were measles and whooping-cough at 6 years of age, and an attack of right-sided pleurisy in January, 1923, since when he had suffered from a persistent cough.

Examination of the chest revealed the presence of dextrocardia, the apex beat being 4½ inches to the right of the midsternal line in the fifth intercostal space. Marked impairment of the percussion note was elicited at the base of the right lung, together with amphoric breath sounds, whispering pectoriloquy, sharp consonating crepitations, and the peculiar squeaking sucking sounds, described as being characteristic of fibrosis of the lung by Clark, Hadley, and Chaplin.[2] An interesting feature was that consonating crepitations could also be heard in exactly corresponding situations on the left side of the chest, without any accompanying impairment of the percussion note. This would suggest that the sounds were conducted from the right side. At the right apex the percussion note was somewhat hyper-resonant and the breath sounds were tinkling in character, suggesting the presence of a localised pneumothorax, or possibly a very large cavity in the upper lobe of the lung. Tubercle bacilli were found in the sputum. On examination of the abdomen, the stomach was found to be on the right and the liver on the left side.

The electrocardiogram (see figure) presented the typical appearance of a true dextrocardia—i.e., inversion of lead I., with transposition of leads II. and III. A radiogram showed the displacement of the heart to the right, a dense opacity at the right base, and at the apex a large cavity, traversed by several strands, presumably blood-vessels.

Points in Diagnosis.

Briefly, the patient had complete transposition of the viscera, basal fibrosis, and apical cavitation of the right lung, with either primary or superadded tuberculous infection. The interesting points in the diagnosis were :—

1. The dextrocardia could be explained either by complete transposition of the viscera or by the basal fibrosis. The amount of cardiac displacement was more than is usually found in uncomplicated inversion of the heart. It was increased by the dextroversion due to the fibroid changes in the lung. The combination in one case of two causes of dextrocardia is probably very rare.
2. The fibrosis of the lung may possibly have commenced after measles and whooping-cough in childhood, or after the right-sided pleurisy in January, 1923. There was, however, no definite history of broncho-pneumonia following the measles and whooping-cough, and the usual signs of long-standing fibrosis of the lung were not present. The bulk of the evidence is in favour of the fibrosis being of pleurogenetic origin, dating from the pleurisy of January, 1923.
3. The condition present at the right apex might have been a localised pneumothorax, or a very large lung cavity. The physical signs suggested a localised pneumothorax, but the radiogram favoured cavitation. The subsequent onset of copious hæmoptysis also indicated that a cavity and not a localised pneumothorax was present.

A further possibility was that the illness of January, 1923, was a tuberculous consolidation of the right lung with subsequent cavitation of the upper lobe and fibroid changes at the base.

I am indebted to Dr. Clive Riviere for permission to publish these notes, to Dr. A. J. Scott Pinchin for the electrocardiogram, and to Dr. F. W. Hamilton, who referred the case to me from the tuberculosis dispensary.

OPTIC ATROPHY DUE TO LATE SYPHILIS.

A NOTE ON THE INTRACISTERNAL INJECTION OF MERCURIC CHLORIDE FOR THE ARREST OF THE CONDITION.

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ACCORDING to Fuchs, optic atrophy occurs in 10–15 per cent. of tabetics, the first indication being a gradual deterioration of vision. By perimetric tests contraction of the field of colour vision is found, the limits for green in particular being restricted. Later the field for white becomes smaller, central vision fails, and amaurosis supervenes. The extensive work of Uhthoff and Stargardt emphasises the inconstancy and variability of the deterioration of vision in each individual affected. One fact remains, failure of vision is progressive and remissions never occur.

Affections of the nervous system due to late syphilis respond feebly to intraspinal treatment. There being no circulation in the ordinary sense in the cerebro-spinal fluid, in order to reach the region of the optic chiasma and optic nerves the drug in solution must be injected towards the base of the brain.

Following the suggestion of Dr. S. R. Gifford, of Omaha, U.S.A., I decided to adopt his technique for the injection of mercuric bichloride into the cisterna cerebellaris.

Practice with the lumbar puncture needle on the cadaver in the post-mortem room gives precision in the technique of cisternal puncture. With the patient lying absolutely prone and with the forehead supported either on a brow rest or suspended in a sling, the lumbar puncture needle is inserted in the neck directly over the spine of the second cervical vertebra. The point is directed upwards in the middle line at an angle of about 45°—i.e., towards the mid-point of an imaginary line joining the two external auditory meati. Between the occipital bone and the atlas it pierces the dense occipito-atlantal membrane. When the graduated needle has entered to a depth of 4 to 6 cm., its point is in the angle between the medulla and the vermis. In order to avoid the danger of "plunging," a guard is placed towards the shoulder of the needle. Ten c.cm. of cerebro-spinal fluid are withdrawn, and to half this amount are added from two to five drops of the 0·5 per cent. solution of mercuric bichloride—each drop being calculated as equivalent to 0·25 mg. of the drug. An injection of four drops diluted would thus contain 1 mg. of mercuric chloride. (It is easy to determine the size of the drops by varying the rate of flow from a burette containing the solution.) The mercuric chloride solution further diluted in the 5 c.cm. of cerebro-spinal fluid is allowed to flow into the cisterna magna by gravity. Severe frontal and occipital headache with pallor, sweating, and a fall in blood pressure are the usual sequelæ. It is very desirable to precede or follow up this form of treatment by siphonage of never more than 6 c.cm. of fluid from the lumbar region of the canal; at the same time, an injection of novarsenobillon is made into a vein in the antecubital fossa.

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[1] Jones, Wallace: Brit. Med. Jour., Jan. 26th, 1924, p. 147.

[2] Clark, Sir A., Hadley, W. J., and Chaplin, A.: Fibroid Diseases of the Lung, p. 102.

Two of my three cases responded somewhat to treatment; in one the course of the atrophy was arrested for some time; in the other its rate was slowed down. Dr. Gifford informs me that he has had a series of cases in which the atrophic process came to a stop following *several* injections, and that some cases had actually improved.

Undoubtedly certain cases of optic atrophy due to late syphilis respond to this form of treatment and the progress of the atrophy is arrested at least for a time. Treatment by cisternal injections is most hopeful when commenced in the incipient stage of the atrophic process. The serious and relentless nature of optic atrophy associated with the late stages of syphilitic infection justifies our attacking the disease by a route which has added risks.

Medical Societies.

HUNTERIAN SOCIETY.

THE MEDICAL WITNESS.

THE Hunterian Society held a discussion at the Cutlers' Hall on Nov. 17th on the subject of The Medical Witness. Mr. H. W. CARSON (President of the Society) occupied the chair.

Mr. Justice HORRIDGE, who opened, said that no one who took part in any way in the administration of justice could exaggerate the importance of the medical witness in courts of law. The medical witness helped the court in every possible way, and his evidence was the handmaiden of justice. In criminal trials, from the simplest assault up to the most serious of crimes, that of murder, the medical witness was frequently called on, and often it was for such a witness not only to consider the facts of the case, but also to judge the criminal's responsibility for his actions. The result in cases concerning wills also often depended more upon the evidence of the doctor than upon anything else, and if a testator was fortunate enough to get his doctor to witness his will the circumstance went a long way to establish that will in the event of dispute. In the Divorce Court and in nullity suits the evidence of the doctor was of first importance. In workmen's compensation cases the doctor as medical referee of the court might be said himself to take part in adjudication. In a vast number of civil cases the evidence of medical witnesses was called on one side or the other. He desired, therefore, to give a few hints to doctors as to the way in which their evidence should be prepared and given. In preparation the medical witness could not be too careful to notice every minute fact even if at the time it did not seem to him to have any importance. Having ascertained the facts he should endeavour to form an opinion from his own scientific knowledge, but there was here a lively danger with regard to which it was necessary to utter a note of warning—the danger, namely, of approaching a case in the first instance with a preconceived idea. Some medical witnesses approached a case with the idea that, for instance, it was a poisoning case, and instead of setting to work to find out all the facts, great or small, and then forming their opinion on the post mortem or other evidence, they started out to see whether the facts of the case fitted in with their preconceived theory. There was nothing so dangerous as that. Their duty was to collect the facts and then to bring their own knowledge to bear. Even after they had formed a definite opinion they should keep their minds open so that should other facts be disclosed in the course of the trial they should be able to mould their opinions even up to their last moment in the witness-box.

Hints to Medical Witnesses.

The learned judge went on to say that in his experience, speaking generally, the fairness with which doctors gave their evidence was quite extraordinary. Often it had happened that when doctors had been standing below under the prisoner's counsel, and had heard the medical witnesses for the prosecution (or for the plaintiff, as the case might be) give their evidence, they had gone out of court because they were not able to contradict a single thing the doctors on the other side had said. The doctor in the witness-box should be on the look-out for the double question. Counsel very often put to witnesses a double question, and if the witness was not careful and gave a simple affirmative or negative the counsel would afterwards use that answer to the half of the question which suited him best. If the witness could give a direct answer, yes or no, he should do so; he was always entitled to qualify it afterwards and to add anything he wished to explain. He would also warn the medical witness against being lured into answering a question on a subject he knew nothing about. He should say that he had not considered the question, and was not in a position to answer it. The medical witness also should endeavour as far as possible to speak in ordinary language. In nine cases out of ten it was sufficient to say that a man was badly bruised; it was not necessary to say that he was suffering from ecchymosis. The use of technical terms often led to the judge or counsel having to explain their meaning to the jury.

Professional Privilege.

In conclusion, he proposed to say a few words about professional privilege. So far as he was aware there were only two classes of persons to whom privilege had ever been granted. It had been granted to solicitors, not on account of any professional status, but because it seemed to be necessary for the administration of justice and the elucidation of truth. Unless people were allowed to have their legal advisers in absolute confidence the machinery of the courts could not go on. The object of that privilege was to facilitate the work of the courts. But even this had its limitations; professional communications in a case of criminal conspiracy were not privileged and had to be disclosed. The second case in which privilege had been allowed was as between husbands and wives. That originally arose from the fact that in former days the wife had no existence apart from her husband, but it arose also from the fact that it would be impossible for society to continue if the relations between husbands and wives could be inquired into. But in recent years Act after Act had made husband and wife eligible witnesses against each other in criminal trials. On what ground should privilege be allowed to the medical profession? In his view there was no ground. The evidence of doctors was required in order to aid the administration of justice. The claim could only be put forward on the ground of confidential relationship, but where was the line to be drawn? Was the nurse who attended the case also to be privileged? Was the chemist who made up the prescription to be privileged? Was privilege to be extended to faith-healers and bone-setters in their relations with their patients? The legislature in two Acts—the Notification of Diseases Act and the Notification of Births Act—both of which, he thought, were passed with the support of the medical profession, required the doctor to reveal, in public, matters which had come to him in his professional capacity. The law was clearly stated by Lord Mansfield, but the speaker would not put it only on the ground of law; in their innermost conscience the doctors must know that they were there to assist in the administration of justice, and it was for that reason that they were protected.

The Need for Impartiality.

Sir William Willcox said that the giving of evidence was one of the greatest privileges of a medical man. The way in which he gave it might affect not only the result of the inquiry, but also his own reputation. In preparation for his evidence he should be careful to notice everything that might have a medico-legal bearing and record it, for memory was fallacious and untrustworthy, particularly as regards exact details. Even a trifling detail might turn out to be one of the most important points in a subsequent trial. His evidence should be given in clear and concise language, suited to persons of average intelligence possessing no special medical knowledge. In the case of expert evidence the doctor should realise that his function was to assist the court of inquiry by his special knowledge and experience. He should not be an *ex parte* witness, and should be absolutely free from bias. This was of supreme importance in criminal cases, but impartiality should be no less important in civil cases. The witness should refresh his memory by the most careful study of scientific literature; if necessary, he should conduct scientific experiments and investigations to elucidate any difficulties which might arise. He should cross-examine himself on every aspect of the question. Here the speaker wished to say what a great advantage it had been to him to have had consultations with counsel before a trial came on; the cross-examinations at these consultations were usually much more searching than those in the actual witness-box. It was an advantage to the expert medical witness to imagine himself in the position of the judge or of the cross-examining counsel and try and regard the subject of inquiry from their point of view as well as from that of counsel on the other side. With regard to medical reports, before being called on to give evidence the expert medical witness should express his opinion on the facts before him in a written report, and the reasons for his opinion should be concisely stated. The opinions expressed in that report should be his inalterable views upon which he had no doubt whatever. Any expressions of opinion on which there was any possibility of doubt should be omitted from such a document. In the witness-box evasions of a direct answer were apt to create a bad impression. A direct negative or affirmative should be given where possible, and if this was not possible the reasons for inability to give a direct answer should be clearly and courteously stated. Lengthy explanations and attempts to give lectures in the witness-box were apt to weaken the evidence. If a double or a triple question was put to him, the witness should ask for it to be suitably divided and make his reply on each section. If statements from books or reports were put to him, the expert witness would be wise to ask to see the work in question. Generally if books were quoted to controvert one's evidence it was possible, with the book in one's hand, to turn the tables. It would often be found that counsel had taken a chance passage out of the book, but that the context or the main argument supported the contention of the witness. Another point was that the expert witness should be in court during the whole of the proceedings. Indeed, it had been ruled that it was necessary for such a witness to hear the evidence. He concluded by expressing, out of his very lengthy experience as a medical witness, his sincere appreciation of the courtesy and consideration invariably extended to medical witnesses by members of the legal profession.

Sir Francis Newbolt, K.C., said that he had found the medical experts almost the only experts who were fundamentally honest, and this he illustrated by cases in which experts on other lines had differed to an extent which he could not regard as an honest divergence. The bias in human nature produced by fighting on one side could not easily be overcome, but he liked to treat such cases rather as inquiries than as dog-fights. In his court it was not possible to bully a witness. This came about largely because there was no jury. No one who had ever sat on the bench could fail to distinguish between the two types of trial. When a judge was trying a case with a jury he had to consider all the time what was likely to be going on in the minds of the jury. If a judge sat alone he made his notes in the most convenient and also most true form by paraphrasing the witnesses, but if he had to sum up to a jury he had to put on his note the exact words used by the witnesses, otherwise he might be accused of garbling the evidence. The speaker added that even the honest experts of the medical profession were not impeccable. He recalled a case when he was at the Bar. In a workmen's compensation case at the county court, when the question was whether a much injured workman had recovered, a doctor called as an expert witness gave his evidence quite decidedly. Some time later the speaker was leading in a case at the assizes when the same doctor appeared on the other side, and in exactly the same circumstances gave evidence contrary to what he had given before. The speaker would not easily forget the disturbed look which came into the witness's face when he reminded him on the second occasion of that earlier encounter. His advice to medical witnesses would be that if they knew their book and were not afraid of anybody they could not be put down nor effectively cross-examined. The great thing to remember was common-sense, and if they could at the same time imagine that they were really appearing for both sides in a case they would make ideal witnesses.

The Dangers of Relying on Precedent.

Sir Bernard Spilsbury thought it might be claimed that the medical profession invariably gave evidence fairly and honestly, and that wilfully misleading or lying evidence was rarely heard from a medical witness. The responsibility of a medical witness in a serious criminal case might not seem so great to the witness himself as to those in court, for in all these cases the evidence was always given impersonally. Doctors were not giving evidence necessarily against the prisoner in the dock, but against the person, whoever he was, who committed the crime. In post-mortem examinations in criminal cases it went without saying that very careful and thorough investigation was required. The expert had not merely to ascertain the facts, he had correctly to interpret them, and it was in this respect that his evidence was of most importance. Members of the legal profession were too apt to think that a doctor had only to observe his facts, but medical men knew that those facts required careful analysis and interpretation before they became the true facts in the case. It was essential in many cases—in almost all criminal cases—that the naked-eye observation of the dead body should be supplemented by microscopical and in a certain proportion of cases by bacteriological examination also. There were a few cases in which the facts were so evident and undisputed that the medical evidence need be little more than formal, but apart from such cases he felt very strongly that skilled expert assistance should be available to the general practitioner. A pathologist should be employed almost invariably. In addition to making a careful examination of the dead body and supplementing that examination by microscopical or bacteriological work, the examiner should always have time and opportunity very carefully to consider the facts he had elicited, and to weigh and compare them with similar facts in other cases, consulting authorities and text-books as required. Only after he had done all this should a medical witness give his evidence in the first—that is, the coroner's—court. With regard to the consulting of authorities, however, the speaker could not help feeling that personal experience based on accurate observation was far more valuable than any text-book. The authority of the text-book should only be supplementary. Text-books themselves were far from infallible, partly because the body of knowledge acquired had been taken from past cases in which the evidence was of very variable value. Moreover, many of these past cases were decided at a time when the knowledge of medicine was far less than to-day. The speaker referred in detail to the famous Palmer poisoning case and the Penge murder case to illustrate how different might be the deductions and conclusions should these cases have been tried to-day, and the danger of relying on older authority for guidance in connexion with recent investigations.

Dr. **EDWIN SMITH** (coroner for N.E. London) amused the meeting with some stories of curious verdicts and riders met with in his experience. One of these was the announcement of the foreman of the jury in a coroner's court that "death was due to the medical evidence!" In another case in which a man had been killed owing to the breaking of the axle of a vehicle, the jury recommended that the axles of all carts should be tested to breaking point! In a case of death which might have been due to lightning, but in which there were some circumstances pointing to the possibility of murder, the jury returned a verdict of "Death from a visitation of God under suspicious circumstances!" Dr. Smith said that it was sometimes the duty of the coroner to protect a medical witness from the unjust censure of the jury.

Mr. **FREKE PALMER**, as a solicitor practising in the police court, said that some medical witnesses, in his experience, were very fair and showed a readiness to help, but others seemed to resent any sort of challenge to their evidence by way of cross-examination. The importance of the evidence of a police surgeon was very great; the term was an unhappy one, because it seemed to imply that the police surgeon must give evidence on the side of the police, which was not the case. He complained a little of the shortness of time which police surgeons gave to the examination of persons alleged to be drunk, and of the fact that very often persons were not examined for illness.

Dr. **P. B. SPURGIN**, speaking as a police divisional surgeon, said that of late years, in his experience, stipendiary magistrates insisted upon a definite yea or nay to the question, "Was the man drunk?" and they would not allow the medical witness to qualify that in any shape or form. He described in detail the methods of examination which he carried out in cases of alleged drunkenness. The pupil reflexes and the smell of alcohol in the breath were absolutely useless as signs, but unsteadiness in gait, incoördination and thickness in speech went to make one consistent whole from which definite conclusions could be drawn.

The **PRESIDENT** briefly concluded the debate, when a vote of thanks to the openers, proposed by Colonel **T. H. OPENSHAW**, was unanimously carried.

HARVEIAN SOCIETY.

A MEETING of this Society was held on Nov. 13th in the Town Hall, Paddington, with Dr. **R. DUDFIELD**, the President, in the chair, when Dr. **N. D. BARDSWELL** opened a discussion on the

RESULTS OF SANATORIUM TREATMENT OF TUBERCULOSIS.

He explained that he would consider the sanatorium treatment of pulmonary tuberculosis only, and would give definite facts as to the mortality of cases after treatment. There were three important independent studies of mortality among sanatorium patients which gave results of striking similarity, an agreement which was presumptive evidence of their accuracy. These studies covered 3000 cases at the Adirondack Sanatorium in America from 1885 to 1911,[1] 1700 cases at King Edward VII. Sanatorium, Midhurst, from 1907 to 1914,[2] and 3738 cases at Brompton Hospital Sanatorium, Frimley, from 1905 to 1914.[3] In each investigation the patients were classified in the customary groups—early, moderately advanced, and advanced, and the mortality of each group during a period of some years subsequent to discharge was compared with the mortality of groups of the general population of corresponding age and sex. This method of comparing actual deaths with expected deaths was commonly employed by actuaries in mortality researches. The Adirondack patients belonged chiefly to the middle classes, the Midhurst patients to the middle classes of small means, and the Frimley patients to the so-called working classes. Speaking broadly, these figures showed that in "early" cases from these sanatoriums the mortality was six times that of the general population; in "moderately advanced" cases it was 16 times heavier, and in "advanced" cases 36 times heavier than that of the general population. These facts proved that the expectation of life of patients on discharge from a sanatorium fell far short of that of the general population. Less scientific but no less useful data were statistics of the percentage of patients alive on successive anniversaries of their discharge from a sanatorium. Dr. Bardswell's analysis of 10,000 cases treated by the public health authorities of London showed that of "early" cases 75 per cent. only were alive five or six years after leaving a sanatorium, and of moderately advanced cases 50 per cent. only survived a like period. Patients who survived the first five years had appreciably better prospects. Comparable records from Newcastle and Lancashire and Derbyshire sanatoriums, which dealt with patients of the more well-to-do classes, and from Frimley Sanatorium, which selected its cases on medical and social grounds and associated treatment with organised after-care, showed better ultimate results. In all statistics which allowed of the separate consideration of cases in which tubercle bacilli were and were not found in the sputum, a great difference was observed between the chances of survival of the two classes. In sputum negative cases after-history returns showed permanent recovery of 80 per cent. or more. If the sanatorium was judged by these cases the verdict was a flattering one. And although the criticism that many of such cases were not suffering from pulmonary tuberculosis was difficult to refute as mistakes in diagnosis certainly occurred, in Dr. Bardswell's opinion such errors were too infrequent to discredit the statistics. A more material point was our ignorance of the proportion of recoveries which sputum-negative cases would show without sanatorium treatment. Among "early" cases with tubercle bacilli in the sputum 70 per cent. or more made permanent recoveries after sanatorium treatment. Such cases formed only about 25 per cent. of the admissions to sanatoriums, a proportion which had remained constant for some years, in spite of greater attention to diagnosis. It was generally thought that every definitely tuberculous patient at some time represented the typical early case of the clinician, and should be recognised at that stage. Dr. Bardswell thought this untrue, and said that undoubtedly many cases were no longer "early" by the time the diagnosis was certain and the sputum positive. The "moderately advanced" cases comprised about 50 per cent. of those dealt with by public authorities, and were the best test for any system of treatment. In a sanatorium such cases almost invariably improved, and many lost all symptoms, giving most encouraging immediate results. But within five or six years of discharge 50 per cent. of them relapsed and died, unless they had incorporated in their lives the principles of healthy living taught them in the sanatorium. Thus, for working-class patients suffering from pulmonary tuberculosis, unless in the earliest stages, the sanatorium could not be regarded as an effective cure.

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[1] Elderton and Perry: Mortality of the Tuberculous, Duleau and Son, 1913.

[2] Bardswell and Thompson: Medical Research Council, 1919.

[3] Hartley, Wingfield, and Thompson: After-histories of Patients Treated at Frimley Sanatorium, Medical Research Council, 1924.

Duration of Treatment as a Factor.

The average length of sanatorium treatment, Dr. Bardswell said, was only about four months. Did anyone imagine that active tuberculosis could be arrested, much less cured, in that time? The surgeon did not; he demanded 12 months or longer for treating surgical tuberculosis. It could not be doubted that prolonged sanatorium treatment would give better results, as was shown by studying cases who continued to live in sanatoriums or on sanatorium principles. However, in many cases among the industrial classes habits and conditions were so bad that even two years' treatment could not render the patients proof against relapse on return, and for such cases four months' sanatorium treatment was as effective as 12 months' and more economical. Hence, sanatorium treatment should be divided into a short course of two or three months for purposes of education for all cases, and a prolonged course up to a year or more given with much more discrimination to selected cases, who showed promise of the will and the ability to take care of themselves after discharge. The difficulties of prolonged treatment were well known, but not insurmountable. Dr. Bardswell then summarised the situation by saying that we knew pretty well what the sanatorium could and could not do. It was the means of alleviating the lot of many and of returning a large number to a long life of usefulness. If pulmonary tuberculosis was regarded as one of the most difficult to cure of the curable diseases, this was no small achievement. Something better would, of course, be welcome, but at present sanatorium treatment and the surgical methods associated with it offered the best hope to the tuberculous patient. This hope was far from the forlorn character of that offered to patients before the sanatorium was introduced.

Laryngeal Tuberculosis.

Sir **StClair Thomson** said he would confine himself to sanatorium treatment for tuberculosis of the larynx. In his opinion there was nothing else and nothing better. Of his own cases he could trace less than a dozen which had recovered without sanatorium treatment, whereas he had had 119 cases at Midhurst Sanatorium alone where the larynx had cicatrised well, and with few exceptions remained so. In contrast to this he quoted some expert opinions written at the end of the last century. Morell Mackenzie in 1880 wrote: "The prognosis of laryngeal phthisis is always very unfavourable. It is not certain that any case has recovered." Other authorities expressed the same opinion: "There was never any expectation of cure. The appearance of tuberculosis of the larynx was the signal of death." The subject was of great importance, since it was calculated that to-day in England and Wales about 106,000 people suffered from laryngeal tuberculosis. It was certainly the commonest specific disease of the larynx. In his youth such patients were tortured with insufflations and antiseptic powders, and he was accustomed to see the larynx as a horrible septic cavity. Nowadays after a short time in a sanatorium the larynx cleaned up in a way he had never seen in the old days. In his opinion sanatorium treatment was the first necessity; the next was rest for the voice either by whispering or better by silence. Silence was difficult at home even for the richest, but was easy in a sanatorium with other silent patients and especially trained nurses. Sir StClair Thomson then showed a number of lantern slides, giving the statistical results of such treatment. In his experience the percentage of cases of pulmonary tuberculosis in which the larynx was affected was in early cases, 4·8 per cent.; in moderately advanced cases, 18·3 per cent.; in advanced cases, 31·5 per cent. Post-mortem figures at the Brompton Hospital gave the higher figures of 48 per cent. from 1908–11 and 34 per cent. from 1911–23. The average percentage of cures of laryngeal tuberculosis by the three methods of silence, whispering, and in selected cases the galvanocautery was 24·9 per cent., or 119 cures in 477 cases. Of the 74 cases selected for the cautery 62 per cent. were cured. These figures showed that there was no such thing as an easy case of laryngeal tuberculosis. All cases were serious enough to deserve a place in Group II. In reference to Dr. Bardswell's paper, Sir StClair Thomson said that the suggestion that if a case was sputum-negative it was not tuberculosis was absurd. Marked physical signs alone were quite sufficient evidence. He had himself seen a number of cases of laryngeal tuberculosis which had never had tubercle bacilli in the sputum. Many such cases had recovered at sanatoriums, but many others had waited for treatment till their sputum was positive and then died.

Early Detection Essential.

Dr. F. J. H. **Coutts** (Ministry of Health) said that the term sanatorium treatment had become almost synonymous with the residential treatment of tuberculosis irrespective of the type of institution, and was often applied to short courses of three months. In his opinion adequate sanatorium treatment had never been given to the working classes, and if it was tried the results would be as favourable as among the well-to-do. He recognised, however, that the circumstances of the worker often rendered it difficult for him to remain sufficiently long in the sanatorium. He agreed with Dr. Bardswell that neither the tuberculosis officer nor the doctor was always responsible for failure to find cases in the early stage, as very often the patients did not come for advice in time. The practice of some doctors in delaying notification until the sputum was positive was very unfortunate; it was most important to get patients while their sputum was still negative. With regard to the statistics given by Dr. Bardswell, we must not be discouraged if the expectation of life of sanatorium patients was below normal. Tuberculosis was a very serious disease, and patients who recovered from it could not expect to be as well as those who had never had it. The real question at issue was: Had a tuberculous patient a better chance of recovery with sanatorium treatment than without it? Statistics bearing on this question had been published and showed a marked advantage of sanatorium over home treatment. Dr. Coutts agreed with Dr. Bardswell that while it was valuable to give short educational courses of sanatorium treatment to as many patients as possible, prolonged courses should only be given to cases selected by the superintendents as likely to reap permanent benefit. But if the community wished to get the best possible results it should see that the conditions of life for discharged patients were such that it was possible for them to carry out sanatorium principles on return to their homes.

The Mental Effect of the Sanatorium.

Dr. W. C. **Fowler** (Superintendent, Pinewood Sanatorium) said that many of the most valuable results of sanatorium treatment were education and improvement of the patients' minds, especially in the better class. Among such results were the intelligent control of cough. Patients on arrival would indulge in much useless and harmful coughing, but after a few weeks would learn to restrain this and yet clear the lungs well by a few effective coughs morning and evening. Again, they acquired a certain philosophy of life which enabled them to accept their physical limitations and cultivate mental activities without violent physical exertion. They learnt to become practically non-infectious by the use of the sputum flask; they lost faith in milk and eggs and special diets, and learnt the fallacy of medicinal cures and the value of fresh air and a clean mouth. They grew to behave sensibly in hæmoptysis instead of being terrified, and finally they learnt from each other how to maintain cheerfulness and harmless recreations. Such results were invaluable, and could not be taught by the practitioner for lack of time.

Discussion.

Sir William Willcox said he could just remember the introduction of sanatorium treatment, and there was no question that it had revolutionised the tuberculosis problem. Nowadays both physicians and the public regarded it as a hopeful disease. Formerly the diagnosis of "consumption" was equivalent in the public mind to a death sentence. With regard to early diagnosis, he thought that one of the practitioner's greatest difficulties was that patients frequently waited too long before consulting a doctor. Another factor which had struck him as an examiner in medicine was the difficulty found by students in their five crowded years of study of learning the clinical signs of early phthisis. Many of them did not know how to percuss a chest, and some could not even percuss a heart. Percussion was a fine art, and too little respect was paid to it and to clinical signs owing to the modern tendency to rely on laboratory work and X rays. Another difficulty for the practitioner was delay in securing the admission of patients to a sanatorium. By the time patients finally reached a sanatorium they might have advanced from Class I. to Class II. This, of course, depended on the accommodation available, and it was doubtful if the nation ever could have really adequate sanatorium accommodation.

Dr. R. S. Walker (Tuberculosis Officer for Paddington) expressed his gratitude to speakers for excusing tuberculosis officers from blame for sending up advanced cases. In his experience the difficulty lay partly in patients seeking advice too late, and partly in their unwillingness to go to sanatoriums owing to the financial difficulty of providing for their families.

Dr. J. Thoresby Jones said that great progress had been made in the last 30 years in Paddington, and he thought the tuberculosis dispensary had done a great deal of good. His chief trouble was the difficulty of getting cases away in time.

Dr. A. Hope Gosse said he had studied a number of early cases and found that they had usually only just applied to a doctor, and therefore could not possibly have been diagnosed earlier. With regard to the difficulty of getting cases into sanatoriums, he had found very little delay in his experience at the Brompton Hospital, suitable patients securing admission to sanatoriums about three weeks after application. He had also had no difficulty in persuading them to go to sanatoriums, and thought that the hospital formed a most useful intermediate stage between the home and the sanatorium, where patients grew accustomed to the idea of treatment away from their relatives.

Dr. W. G. Bendle (Superintendent, Paddington Hospital) said he was accustomed to some delay in securing admission to sanatoriums, and thought improvement was desirable.

Dr. H. C. Phillips regretted the short duration of most sanatorium treatment, which appeared unavoidable owing to long waiting lists, but was most unfortunate, as patients returned to squalid surroundings improved but not fully cured, and so inevitably relapsed.

The President, after referring to reports Nos. 85 and 83 of the Medical Research Council, expressed his feeling of disappointment that the mortality of sanatorium patients after discharge was still much above that of the general public. In fact, no apparent progress had been made since sanatorium work began—possibly because sanatorium treatment had not been altered. He agreed with Dr. Bardswell that the treatment was not long enough, and that if surgical tuberculosis needed one and a half years so did phthisis. That was what we should select as our aim. With regard to delay in securing admission for patients, he had experienced very little, except in spring and summer when sanatoriums were fashionable. The real solution of the problem was the improvement of housing conditions. At present these were almost hopeless for tuberculous patients; the overcrowding was horrible, and as a result of it much of the money spent on sanatorium treatment was wasted.

Reply.

Dr. Bardswell, in reply, said that the situation would never improve until the social conditions and the life of the working classes were made better. With regard to delay in admission, that had been much reduced in the last two or three years, and did not now exceed two or three weeks for good cases. There was, however, a 20 per cent. seasonal flux which complicated the question. The duration of treatment could not be increased without causing an enormous waiting list, unless more money was spent and more beds provided.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A meeting of this Association was held at the Elizabeth Garrett Anderson Hospital on Nov. 11th, Miss M. Chadburn, the President, being in the chair. Dr. Morna Rawlins read a paper on

Complications of Gonorrhœa and Their Treatment.

She said that of all the complications of gonorrhœa she considered those of the uterine adnexa and the so-called gonococcal rheumatism were most to be dreaded. She believed that the tubes and ovaries were affected to a slight extent in a greater number of women infected with gonorrhœa than was generally realised. She proposed to confine her remarks to a few points in treatment. If the condition were seen before a pyosalpinx had developed the patient must be kept in bed and on a light diet, and long hot douches administered. It was immaterial what form of douche was used, although she herself preferred salt ʒii. to Oi. The douche must be slowly given, large in quantity, as hot as could comfortably be borne. The douches should be followed by the insertion of glycerine of ichthyol pessaries (10 per cent.). Hot fomentations to the abdomen might help to relieve pain. She had lately tried injections of sulfarsenol, recommended to her by Dr. C. Doble, with excellent results. The injections were given intramuscularly into the hip—e.g., beginning with 9 cg., increasing to 18 cg. or more daily for four or five days. Colonel L. W. Harrison had informed her that he found marked alleviation of pain following the use of diathermy, the temperature being 115° F. in the vagina and cervix. If operation had to be undertaken and both the tubes had to be removed, she urged that the uterus and the cervix also should be removed. If a conservative operation were decided on, it was her practice to blow through the tubes from the opened up abdominal ostia with a small pump.

Passing on to metastatic gonorrhœa, or so-called gonorrhœal rheumatism, she said that if a gonorrhœal case was seen early and treated effectively metastatic gonorrhœa should not occur. Joint or muscular conditions and also synovitis were usually accompanied by some cardiac disturbance which might become the most disturbing factor in the case. In all forms of metastatic gonorrhœa the treatment of the primary focus was of the utmost importance. In gonococcal arthritis Dr. Rawlins did not approve of splinting. Locally she applied lint soaked in ichthyol and glycerine over the painful part, and a pad of cotton-wool, and the whole was kept in place by a light bandage. If the patient slept better with a splint she allowed one for the night only and not for the day-time. Absolute immobility of the part, even in an acute condition, tended to favour ankylosis. The pain deterred the patient from harmful movements. Dr. Rawlins put these patients on a course of collosol manganese, 1 c.cm. intramuscularly daily, and the relief obtained by this and by heat applied locally was striking. When the temperature fell and the pain ceased the injections were stopped and massage and passive movements started. Vaccines should only be used with the greatest caution in joint cases after the acute condition had subsided. Salicylates were useless in gonorrhœal rheumatism. Collosol sulphur was useful given orally with meals.

Discussion.

Dr. **Edith Tindal-Robertson**, in her clinic, saw very few cases of established gonorrhœal arthritis, but many patients complained of pain round ankles and other joints; the pain appeared to be centred in the tendons and fibrous sheaths. Vaccines were useless; sulphur by the mouth seemed to cause improvement, but, on the whole, patient treatment of local symptoms appeared alone to alleviate these conditions. Another point to which she drew attention was the retroflexion often found in chronic cases, frequently associated with vaginal discharge. Sometimes the uterus was fixed, but more often lightly tethered. Surgeons were apt to refer back these cases for cure of discharge before attempting to correct the retroflexion, but in Dr. Tindal-Robertson's experience the discharge did not clear up until the uterus was placed in a position where free drainage was possible.

Dr. **Frances Huxley** said that in many chronic cases of adnexal infection the original infection had been insidious and the symptoms hardly noticed by the patient, but the tubes might, nevertheless, be blocked. She recommended medical treatment (unless there was a misplacement) if there was a chance of saving the tubes. Otherwise she practised removal of the whole tract. Salpingostomy was done in certain cases rather to encourage the patient than in the conviction that pregnancy was likely to ensue. Acute cases, if the differential diagnosis from appendicitis had been established, she also treated on medical lines.

Dr. **Eva White** differentiated medical diathermy, which aimed at producing heat without damage to tissues, from surgical diathermy which aimed at coagulation. The former was used with success in chronic gonorrhœa. The coccus was very susceptible to even a moderate degree of heat; probably 105° F. would kill it, and the tissues could be heated to 115° F. by diathermy. One electrode should be placed in the cervix, and the other in the urethra, in the rectum, or on the abdomen. The urethra was a useful site as a sensitive indicator of heat. Another use of diathermy was as general treatment to stimulate circulation and elimination so as to facilitate penetration of drugs exhibited by the mouth. The leucodescent lamp had proved very useful in her hands and appeared to be sedative.

Dr. **Agnes Savill** said that in intractable cases local ionisation of urethra and cervix had proved of great value. At St. Bartholomew's Hospital she understood that good results in tube cases and even in arthritic conditions were being obtained by means of diathermy.

Dr. **V. Russell** had recently treated four or five patients with tubal inflammation who had proved refractory to injections of collosol manganese with sulfarsenol (12 cg. intramuscularly) with most encouraging results.

Dr. **G. Sandes** described a case who had been treated for a considerable period in the out-patient department of the Lock Hospital, but had subsequently developed arthritis when actually in the hospital wards. She found that solid silver nitrate fused into a rod was very useful for infection of Skene's tubules. Sufferers from Bartholin abscess who could not lie up were conveniently treated by packing the cavity with narrow ribbon gauze impregnated with collosol silver; this seemed to prevent pockets.

Dr. **Louisa Martindale** asked whether Dr. Rawlins had ever tried surgical diathermy for gonorrhœal warts; she had found this very successful in a recent case.

Dr. **Dorothea Taylor** asked as to the relative value of films and cultures in the diagnosis of chronic cases.

Miss **Esther Rickards** had had success using succinate of mercury in these cases. She asked whether Dr. Rawlins approved of salpingotomy in the acute stage.

Miss **A. Bloomfield** asked (1) what was Dr. Rawlins's criterion of cure, and (2) which cases of vaginal discharge she treated as gonorrhœa. In the speaker's experience in not more than 1 in 20 patients could the gonococcus be detected; it was her custom to treat for gonorrhœa if pus was present in the urethra or cervix.

The **President** commented on the fact that many cases of acute gonorrhœa were cases of acute abdomen and exploration was necessary for diagnosis. She generally confined her treatment in these cases to washing out the tubes and draining Douglas's pouch by the vagina. It would be interesting to ascertain in how many cases where tubes were saved pregnancy eventuated. Of the many she had saved only two pregnancies were known to have resulted.

Reply.

Dr. **Rawlins** believed that diathermy had a great future in these cases, and in connexion with her clinic at Guy's Hospital she hoped soon to be able to give it an extensive trial. In answer to a question on the complement-fixation test, she herself had found it to be very satisfactory, but it was not manifest for six weeks at least after infection and did not become negative for about two months after vaccine treatment. She agreed that silver in any form was the most useful dressing for a Bartholin abscess. She treated gonorrhœal warts with the cautery, keeping the parts very dry, unless the warts were very numerous, in which case she cut off the heads with sharp curettes and then scraped off the stumps. Positive cultures and films were of great value; they were more likely to be positive if taken just after a period. If the pus stained very brightly and no other organisms were present the case was suggestive of gonorrhœa. Examination of the husband might help the decision. As to cure, six months' negative films and absence of pus was the ideal, but if only some slight degenerated pus was present, not brightly staining, the case was probably cured.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A clinical meeting of this Society was held on Nov. 6th, Dr. **G. M. Duncan**, the President, being in the chair.

Mr. **A. Mitchell** showed two children with *Spastic Paraplegia treated by Stöffel's Operation.* He pointed out that mild cases of deformity might be treated by continuous fixation followed by general rhythmic exercises, preferably to music, intermittent forcible passive movements and massage being forbidden as the spasticity was usually increased by these measures. More severe cases must be treated by operation with the aim of enabling the patients to walk. The main types of operation were three: resection of the posterior nerve-roots; section and suture of a main nerve-trunk—e.g., the sciatic; and resection of portions of certain motor nerves in order to restore the muscular balance—e.g., branches of the obturator nerve and the nerves to the gastrocnemius and the soleus, with occasional tenotomy of the adductors in addition. This third method had been employed in the cases shown, and both patients were now able to walk and to attend school.—In the discussion on these cases Mr. **W. Anderson** referred to the recent work in

Australia of Hunter and Royle, who advised division of the second, third, and fourth rami communicantes of the sympathetics. Mr. Anderson had seen four cases treated by this method, but thought them still rather spastic.

Dr. W. BROWN showed a child of 23 months with *Tuberculous Peritonitis, Dactylitis, and Lupus Verrucosus* (the abdominal condition had been treated by operation followed by mercurial inunction, and was now greatly improved); and a child of 14 weeks with congenital heart disease presenting unusual features. —Mr. F. K. SMITH referred to the rarity of tuberculous dactylitis in adults, and asked whether such cases generally died in childhood.—Dr. G. ROSE confirmed the rarity of this condition from his examination of all school-children of 13 years in Aberdeen for the last 15 years.—Dr. BROWN agreed, and said that in his experience such cases were almost always subjects of a multiple tuberculous infection and did not live long.

Mr. ANDREW FOWLER showed two cases of severe *Bilateral Dupuytren's Contracture* in adult males, treated by multiple subcutaneous fasciotomy under local anæsthesia.—In the discussion Mr. SMITH suggested that as the fingers were now extended the palmar fascia might be excised to prevent the possibility of recurrence.—Dr. H. R. SOUPER referred to a good result obtained by Gill's operation—excision of the palmar fascia through a transverse incision and the implantation of a fat-fascial graft.—Mr. ANDERSON, Mr. MITCHELL, and Dr. J. CRUICKSHANK raised the possibility of treatment by radium on the analogy of its success in cases of keloid.

Mr. F. K. SMITH read notes and showed skiagrams of two cases: First, a man of 51 with a *Tumour of the Upper End of the Femur and a Fracture of the Femoral Neck*, as the result of a slight accident in June, 1923. Tissue removed by exploratory operation at that time was reported "ossifying chondroma." Operation was not considered advisable, and the patient did not report again till recently, when definite changes for the worse were seen on skiagraphy. This case was discussed by several members, and the general impression was that the tumour had now taken on sarcomatous changes, and that radium was the only possible method of treatment. The second case was one of a girl of 17 with *Pyuria*, and some slight tenderness and enlargement of the right kidney; full examination by clinical and bacteriological methods, ureteral catheterisation and cystoscopy, X ray and pyelograms demonstrated irregular dilatation of the right ureter, a pyonephrotic right kidney, and calcareous deposits in the mesentery; and an oval calculus in the lower end of the left ureter, with dilatation and septic changes of the left kidney pelvis. Tuberculosis had not been demonstrated.—In the discussion of this case Mr. MITCHELL suggested lavage of the renal pelves.—Mr. SMITH, in reply, stated that his proposed treatment was to estimate the separate functional activity of each kidney by the administration of urea and ureteric catheterisation, to remove the calculus, and then treat on medical lines. In his opinion, if the case were tuberculous there would have been signs in the bladder or at the orifices of the ureters by the time the disease in the kidneys had reached its present stage.

ULSTER MEDICAL SOCIETY.

THE opening meeting of the present session was held in the Medical Institute, Belfast, on Nov. 6th, when Dr. J. SINGLETON DARLING (Lurgan), the new President, gave his inaugural address upon the

Organisation of Medical Services in Northern Ireland.

The address was looked forward to with interest, inasmuch as the Government of Northern Ireland recently appointed a Commission to consider the whole question of local government, including medical services, in Northern Ireland. Dr. Darling has been for many years active in all questions relating to medical politics, and his experience has been exceptionally wide.

Dr. Darling sketched the history of the Irish dispensary system, and was of the opinion that after 80 years' experience of this system there were now far larger numbers than were justified who continued to seek free treatment under the Medical Charities Acts. He was in favour of the extension of medical benefits under the Insurance Act or some other contributory plan, free from the taint of pauperism inherent in the present system, and held that reform on these lines, increasing the number of paying patients and diminishing the number of those who received free treatment, was more promising than a demand for the largely increased salaries which should be paid to dispensary medical officers if things remained as they are at present. Dispensary districts should be reduced in number, graded according to the services required, and remuneration should take account of the increased cost of medical education and of living and conveyance, since salaries were fixed 80 years ago. Opportunity should be made for the transference of dispensary officers from less to more desirable districts, according to merit and length of service. It was imperative that the issue of "lines" should be confined to really necessitous persons. Except in Belfast, he thought that workhouses should be abolished, as the Old Age Pension provided for the great majority of the infirm. Some of the existing workhouses might be utilised as refuges for the feeble-minded and harmless insane, or as almshouses, or as homes for a labour colony.

The Hospital System.

The present hospital system required reconstruction. It should be unified and administered under the county councils. A central hospital, fully equipped and adequately staffed, should be coördinated with as many satellite hospitals as the needs of the various populations might require. By such coördination those in charge of the smaller institutions could have the right to the services of the heads of the central hospital in consultation and their help in emergencies. The central hospital should be fully equipped, and include X ray and electrical, ophthalmic and dental departments, laboratories and pathological departments. Possession of one of the higher qualifications should be required for the officers of the central hospital, and the remuneration should be such as would attract the best type of men. Nurses should be trained at the central hospital and supplied to the affiliated institutions. Advantage should be taken of the existing hospitals, and in some counties the county infirmary would constitute a suitable central hospital. Necessitous patients should have the fullest provision for their treatment, while those able to pay should make a suitable contribution to the hospital, and the well-to-do should, in addition, pay the medical hospital reasonable fees.

Public Health Service.

There should be established, the speaker said, a properly constituted public health service under the county councils, who should have a full-time county medical officer, who would be the ultimate authority, and who would have the general oversight of the dispensary medical officers. It was a matter for consideration whether the tuberculosis service, child welfare, maternity benefit, school inspection, dental and ophthalmic dispensary should be administered under his direction. The boards of guardians should cease to have any connexion with the medical services. The county councils should have financial control, and function through committees, to which a number of outsiders representing the medical profession and the benevolent public should be coöpted. The existing nursing societies and cottage hospitals should be continued and should receive financial aid. The present methods of dealing with casuals would require a thorough overhaul, and a distinction made between the habitual and immoral casual on the one hand, and the decent industrial class, temporarily out of work, on the other hand.

Reviews and Notices of Books.

STUDIES IN HUMAN BIOLOGY.

By RAYMOND PEARL, Professor of Biometry and Vital Statistics in the School of Hygiene and Public Health and of Biology in the Medical School, Johns Hopkins University. Baltimore: Williams and Wilkins Company. 1924. Pp. 653. $8.

WITH the exception of three chapters these studies have already appeared in a wide variety of scientific journals during the last 20 years. As the author says, the only unity which can be claimed for them is in his point of view. Perhaps this is, as he suggests, the most significant kind of unity in a scientific book. In this case at least it guarantees a sustained interest to all readers who have a quantitative outlook on life. Particularly, we believe, will these essays appeal to the anthropologist. Dr. Pearl was among the first of the biologists to treat the animal man as proper material for laboratory study. His interest in this subject is never far away from any of the discussions, be they on the weight of the brain, the ratio of the sexes, vital indices, food waste and consumption, or the population problem. His contribution in the last field of a theoretical curve of population growth which fits all the actual curves derived from national statistics in 16 different countries is perhaps the most significant of all his researches. The diagram on p. 526 which shows on an arithlog grid the progress of the world's population compared with "the production of certain materials in the nineteenth century" is another astonishing example of the dramatic value of the statistical method. We may not derive from its study the same anxieties as assail Dr. Pearl, but nobody can look long at those curves of coal, and iron, and cotton climbing on a slope ten times steeper than man's own without being compelled to think. Is our civilisation doomed? If so, what will take its place? It is perhaps a mark of the true statistician, as compared with his more abundant counterfeit, that he uses his statistics to provoke argument rather than to quell it. A more provocative book than this collection of Dr. Pearl's work it would be difficult to imagine.

Under their motto "Sans tache" the publishers print a list of those of their employees whose skill and workmanship have gone to the making of the book. "The printing craftsman of to-day," they say, "is quite as much a craftsman as his predecessor. There is quite as much discrimination between poor work and good." Eight blurred pages in the copy sent to us suggest that the craftsman's vigilance is sometimes relaxed. On the whole the book is a creditable production, and the attempt of a modern large-scale manufacturing company to recover for the workers in their plant the just dignity of craftsmen is worthy not only of notice but of imitation.

INFECTIOUS DISEASES.

G. Jochmann's Lehrbuch der Infektionskrankheiten für Aerzte und Studierende. Second edition. Edited by Prof. C. HEGLER, with the assistance of Prof. B. NOCHT and Prof. E. PASCHEN. Berlin: Julius Springer. 1924. With 464 illustrations, for the most part in colour. Pp. 1077. $12.90.

THE first edition of this very complete account of the infectious diseases appeared in the autumn of 1914, and, no doubt owing to the war, does not seem to have reached this country. The author, Prof. Jochmann, lived long enough to see its success before he fell a victim to typhus, contracted, we believe, on a visit to one of the prisoner-of-war camps. His book is more comprehensive in its scope than its title might suggest. It includes diseases which in this country are usually relegated to treatises on tropical medicine, such as malaria, plague, and cholera. It contains an excellent section on the infections communicated from animals to man, and the various forms of food poisoning also receive ample consideration. Among the conditions which we are not yet quite accustomed to meet with in books on infectious diseases are rheumatic fever, herpes, and erythema nodosum. On the other hand, acute lobar pneumonia, which might be regarded as having a greater claim for inclusion, has been omitted. It is true that general pneumococcal infection is described in detail, as are also gonococcal and other septicæmias, including miliary tuberculosis. This section of the book, indeed, dealing with blood infections, is particularly full and instructive, and contains admirable articles on the enteric group of fevers, relapsing fever, and puerperal septicæmia. It is, however, not a little disconcerting to find general infection with the meningococcus or the anthrax bacillus discussed several hundred pages away from the more ordinary types of the diseases in question.

The production of this edition has been entrusted to the capable hands of Prof. C. Hegler, who has had the assistance of Profs. B. Nocht and E. Paschen. The book has been brought well up to date, and chapters on Weil's disease, herpes, and encephalitis have been added. As regards the latter, all the recent work on the identity of its virus with that of herpes is very fully discussed. The experience gained by the editor in the Near East during the war must have been of the greatest advantage to him in the revision of the articles on infectious diseases likely to be met with on military service. Dr. Jochmann believed that lengthy descriptions of various conditions can be considerably curtailed, or even dispensed with, provided that liberal use is made of illustrations and temperature charts. There are no less than 464 of these in the text, and almost without exception they are both instructive and conveniently placed. Those in colour are, on the whole, remarkably good, though it must be confessed that the exact shades of rashes seem often unattainable. Particularly successful are the illustrations showing cancrum oris, the Schulz-Charlton reaction, and the various septic and diphtheritic conditions of the throat. Dr. Jochmann was the first to prepare a serum for cerebro-spinal fever and to make use of intrathecal administration in that disease; from all points of view, epidemiological, pathological, or clinical, the article on this subject is a good one, but it is unfortunate that the temperature charts illustrating treatment should suggest that serum can be satisfactorily given at 48-hour intervals. The general opinion of authorities is that daily injections are necessary for at least four days, a procedure reserved by the author for severe cases.

The revision of the sections on variola, varicella, and vaccination, the latter especially good and well illustrated, has been undertaken by Prof. Paschen and gives but little ground for criticism. It is curious, however, that in the discussion on differential diagnosis in the chicken-pox chapter no stress is laid upon the distribution of the eruption. This omission is to some extent rectified in the corresponding section on small-pox, but even there the author is content to say that the one eruption is centrifugal and the other centripetal. It is evident that on the continent the views of the late Dr. Ricketts have not received the attention which they deserve, although his writings and those of Dr. W. McC. Wanklyn are mentioned in the short bibliography at the end of the chapter. The article on diphtheria maintains the same high standard as the others. It is interesting to compare the practice of different countries as regards serum dosage, and we note that Dr. Jochmann, while employing somewhat larger amounts of antitoxin than Dr. Baginsky of Berlin, is content with what are considered moderate doses in this country. He gives 3000–4000 units for mild cases, 4000–8000 for moderate, and 8000–9000 for severe, repeating next day if necessary. He approves of intravenous administration for the worst cases. His only indication for what we would consider large doses—e.g., 40,000 units or more—appears to be severe post-diphtheritic paralysis, which many of us would maintain is, when once established, not influenced by the use of serum at all. On the whole, the information given about the Schick reaction and immunisation is scanty and disappointing, and it appears that little work on the subject has been done in Germany. The editor, however, states that he has found difficulty in obtaining the literature relating to the extensive use of the test in America.

The book makes no pretensions to being a work of reference, and unusual and rare complications are often omitted. It appears to us better suited for the practitioner than the student, as it is unnecessarily large for the latter. Those especially concerned with fever work will find much to interest them, and can hardly fail to obtain some useful hints in treatment and diagnosis.

Drink Jottings.

By Maurice C. Hime, M.A., LL.D., Barrister-at-Law. Dublin: Hodges, Figgis & Co. 1924. Pp. 84. 1*s*.

We have previously reviewed two of Dr. Hime's books, "Wild Oats: A Sermon in Rhyme," in 1903, and "Schoolboys' Special Immorality" in 1899, and we commended their earnest and strongly-minded eloquence. Now, nearing the age of 84 and in retirement in County Donegal, Dr. Hime indefatigably continues his self-appointed task of preaching to the young, and he has collected several articles contributed to the local press and added some new chapters to form a little volume which preaches personal abstinence, and the national prohibition of alcohol as a beverage. Not even the most ardent "anti" could justly accuse the author of this contribution to the literature of prohibition of being a fanatic. His arguments are clear and decisive; he fastens on the weak spots in the anti-prohibitionists' armour. Why this tremendous propaganda against prohibition? Is it disinterested effort in the cause of so-called liberty? What is a moderate drinker? These are some of the questions which he raises directly or by implication, and the non-abstainer who fears that he will never be able to break his habit may take encouragement from the fact that Dr. Hime himself had taken no side in the controversy and had been a drinker of alcohol until a short time ago when, "better late than never," as he heads the chapter containing his "confession," he broke "so easily through a fifty-year-old habit" and took water for his dinner. Even those who disagree with the author will find this an interesting book.

Junior Red Cross Manuals.

British Red Cross Society. *Junior First-Aid Manual.* No. 1. By C. Max Page, D.S.O., M.B., M.S., F.R.C.S. Pp. 95. *Junior Nursing Manual.* No. 2. By Beatrice Agar. Pp. 103. *Junior Health Manual.* No. 3. By Beatrice Agar. Pp. 100. London: Cassell and Co., Ltd. 1924. 1*s*. 6*d*. each volume.

The Junior Red Cross is a movement which originated almost simultaneously eight years ago in Canada and Australia and is now world-wide in its extent. The Junior section of the British Red Cross is endeavouring as part of its programme to promote health among the school-children of this country, and it has recently produced three books along the lines of the well-known manuals of the "Senior" Red Cross Society. Mr. Max Page has dealt with the difficult task of presenting first-aid to children as a practical subject based on definite theoretical principles. The first section of his manual is devoted to an account of anatomy and physiology, written in a clear and lucid manner, and forms an admirable background to the second half of the volume, which deals very clearly with first-aid measures for the usual emergencies. The treatment advised is quite in accord with the changes in medical opinion which have taken place within recent years, and we fully agree with the statement of Sir George H. Makins, who has written a foreword to No. 1 of the series: Mr. Page "has produced a handy manual embracing succinctly the wide subject he has had to deal with." In No. 2 of this series the details of home nursing are described also with due regard to the theoretical aspect of the subject. The "good nurse" and her daily duties are dealt with in a restrained manner, and special chapters contain simple accounts of surgical nursing, the nursing of children, and bandaging. In the manual devoted to "Health," a more difficult task has faced the author, for good health must be presented to children as a positive virtue to be striven after and not as a dull and uninteresting alternative to disease. This book gets over a real difficulty effectively. Personal health, the healthy house, food and health, clothing, all receive attention, and there are also chapters on "A Healthy Baby" and "A Healthy Mind." That health is not purely an individual affair but one which concerns our neighbours as much as ourselves, is also insisted upon, and a chapter on "Public Health" has been wisely added. Each manual contains a suitable syllabus for lectures on the subject with which it deals, and these volumes will therefore prove useful both as text-books for members of the Junior Red Cross and other organisations for promoting health among children, and also as guides for those who have to give instruction in these subjects.

Physiological Principles in Treatment.

Fifth edition. By W. Langdon Brown, M.A., M.D. Cantab., F.R.C.P., Physician to St. Bartholomew's Hospital; Consulting Physician to the Metropolitan Hospital, &c. London: Baillière, Tindall and Cox. 1924. Pp. 511. 10*s*. 6*d*.

This is the second revised edition of Dr. Langdon Brown's book to appear since the war, and the new features which now appear should further increase its popularity. Two new chapters on the work of the liver and on asthma have been added, and new sections deal with insulin, uræmia, and fractional test-meals. It is somewhat surprising that the author in his chapter on the stomach makes no reference to the important physiological researches of A. J. Carlson, and his close adherence to the hormone theory of gastric secretion expressed on pages 49 and 61 appears to require some modification in view of recent work. Dr. Langdon Brown's learned pages are, as ever, enlivened by an epigrammatic pen, "The method of going about with a syringe full of insulin in one hand and a stick of barley sugar in the other carries its own condemnation with it," being one of many rewards for readers of this little book.

JOURNALS,

Quarterly Journal of Medicine.—The October number contains the following articles: The Effect of Iodine on Hyperthyroidism in Man, by S. J. Cowell and E. Mellanby. It has been shown that hyperplasia of the thyroid is always associated with a diminished iodine content in the gland, whether or not symptoms of hyperthyroidism are present. The relationship of the intake of iodine to metabolism in general has not yet been determined. The administration of iodine in minute doses in the form of cod-liver oil or of potassium iodide to patients suffering from exophthalmic goitre usually produces some alleviation of symptoms, whereas larger doses of iodides are almost invariably harmful. Eight cases of hyperthyroidism were treated by small doses of potassium iodide. They all showed signs of improvement, such as slowing of the pulse-rate, diminution of nervous excitability and a lowering of the basal metabolic rate. Treatment by iodides is therefore recommended as an adjunct to other forms of medical treatment in cases of hyperthyroidism and also as a preliminary measure to any surgical procedure.—A Clinical Study of van den Bergh's Test in Jaundice, by C. H. Andrewes. Observations are here recorded upon the value of the van den Bergh test which are based on a series of 184 cases. The author finds that the test enables a diagnosis to be made between a frankly hæmolytic and a frankly obstructive jaundice, but that it does not serve to differentiate icterus due to liver cell damage from other types of jaundice. The quantitative estimation of blood bilirubin allows the distinction to be drawn between a pernicious and a secondary anæmia.—The Relation between the Basal Metabolic Rate and the Pulse-pressure in Conditions of Disturbed Thyroid Function, by H. Whitridge Davies and John Eason. It was shown in 1922 by Read that the pulse-rate and pulse-pressure in cases of hyperthyroidism vary with the basal metabolic rate, and a formula was devised for calculating basal metabolism from these pulse records. The authors have made an extended series of observations on the pulse-pressure and basal metabolic rate in cases of hyperthyroidism. They find that an increase in the former is characteristic, whereas the pulse-pressure falls in uncomplicated hypothyroidism. The pulse-pressure and basal metabolism vary in the same direction, and determinations of the former afford a simple and reliable method of checking the accuracy of the latter.—Some Factors Concerned in the Ætiology of Tetany in Children, by Grace H. Anderson and Stanley Graham. A biochemical investigation was carried out on a series of cases of tetany in infants. The calcium content of the blood serum is always diminished in active tetany; in latent disease, however, it is not always lowered. Signs of tetany were found to disappear if acidosis be produced apart from any rise in the calcium content.—On the Pathology of Nephritis associated with Œdema, as illustrated by six cases, by S. C. Dyke. It has been suggested that in all cases of "primary chronic interstitial nephritis" there has been an antecedent but unnoticed attack of acute nephritis. The author records a series of six fatal cases of "chronic parenchymatous nephritis," all somewhat acute at the onset, which, he states, had not death intervened, might have conformed to the chronic interstitial type. Clinically they were all characterised by œdema, and histologically the kidneys showed degeneration of tubular epithelium, some glomerular changes, and deposition of cholesterol esters. Some of these cases showed a gradual retention of blood-urea. This is expressed as milligrammes per cent., which is, presumably, an error for milligrammes per 100 c.cm. It is suggested that those showing nitrogen retention would tend to pass into a state of secondarily contracted kidney. The relationship of an increase in blood cholesterol, the deposition of cholesterol-esters in the kidney, and the presence of œdema is also discussed. A series of three plates is included illustrating the microscopical appearances of the kidneys.—Spontaneous Subarachnoid Hæmorrhage, by C. P. Symonds. The article opens with a review of the literature dealing with spontaneous (non-traumatic) subarachnoid hæmorrhage. The possible ways by which blood may gain access to the subarachnoid space are discussed. The clinical manifestations of the disease are then described, and an account given of three new cases which have come under the author's observation. A brief description follows of the differential diagnosis and treatment. The article is illustrated by a coloured plate showing a small aneurysm situated at the bifurcation of the anterior cerebral artery which ruptured, causing subarachnoid hæmorrhage. The patient in whom this occurred was 24 years of age, the other cerebral vessels were healthy and no sign of disease was discovered elsewhere.—Cholesterol in the Blood in Cases of Gall-stones, by J. M. H. Campbell. Chauffard has warmly advocated the view that gall-stones owe their origin to a hypercholesteræmia, with consequent increased excretion of cholesterin in the bile, rather than to the presence of infection in the gall-bladder. Discordant opinions, however, prevail as to the amount of cholesterin in the blood in cholelithiasis. The author investigated 52 cases, and found that there is no increase in the amount of blood cholesterol in the presence of gall-stones, provided that the patient is not jaundiced. In some of the cases cholecystitis was actually present, which tends to overcome the possible objection to the value of the findings, on the ground that the observations might have been carried out at a time when active pathological changes leading to the production of gall-stones were over.

Reports and Analytical Records.

INNOXA.

(Les Laboratoires Innoxa, Agents, 15, Dover-street, London, W. 1.)

We have received an assortment of dermatological preparations with the common title Innoxa, consisting of a lotion, a cream, a *mousse*, and an unguent, with special directions for their employment rather as toilet preparations than as pharmaceutical substances. The formulæ have been suggested by Dr. Debat, late head of the Dermatological Laboratory of the Hospital St. Antoine in Paris, with the object of providing practitioners and dermatologists with toilet products which can be recommended with confidence. Innoxa Milk is made up on a basis of lanolin and cocoa-butter emulsion suspended in distilled rose-water. Innoxa Cold Cream contains in addition pure wax. Innoxa Powder with a basis of rice-starch, talc, and zinc oxide is intended to replace powders which tend to dry and irritate the skin. All the preparations are pleasant in substance and suitable for application in the methods which are indicated by their titles, while such perfume as they have is delicate and unobtrusive.

KALZANA.

(Therapeutic Products, Ltd., Napier House, 24/27 High Holborn, W.C. 1.)

In connexion with this preparation, a product of A. Wulfing and Co., of Amsterdam, a correspondent calls our attention to a misprint which we have already corrected, but as it appears to have caused some confusion in the minds of our readers it may be useful again to point out that the preparation is a double salt of calcium lactate and sodium lactate to which are added palatable adjuvants. Good reports have been received of its use as an addition to the diet of expectant and nursing mothers and of rapidly growing children, in the treatment of functional menorrhagia and in hæmorrhage, and all conditions where the promotion of calcium retention is indicated. It should prove a useful help to both physician and surgeon. As we before pointed out, to obtain the benefits of the drug for purposes of ordinary nutrition one or two tablets can be taken daily, but the same dose or three tablets can be taken three times a day where a special addition of lime to the diet is required. Children may take one or two tablets daily. They are best taken after meals either with a little water or milk or simply masticated. The preparation is put up in bottles of 90 tablets.

THE "STERAID" GAUZE CONTAINER.

(Robert Bailey and Son, Ltd., Marriot Street Mills, Stockport.)

We have received a sample of the "Steraid" series of absorbent and medicated gauzes packed in a patent dust-proof container which has considerable merit. The container consists of two cylindrical cardboard tubes enclosed at one end, which slide one within the other, thus forming a box. The dressing in a roll is contained in the inner cylinder and there is a slot running the length of both cylinders which, when in approximation, allows the dressing to be drawn out. By rotating the outer cylinder the outer slot passes over the inner slot and the dressing is enclosed in what is for practical purposes an air-tight compartment, while a reverse turn of the outer cylinder brings the dressing to view. The advantages of this arrangement are that the dressing is not exposed to light or air and is not handled, save that portion which is required for use. This invention is conducive to economy both of time and money, is simple to use, and certainly, from an hygienic point of view, should receive the attention of everyone who has to handle and use surgical dressings.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 22, 1924.

THE STATUS OF MIDWIFERY.

In times which many can remember the status of midwifery was thoroughly unsatisfactory. Medical students, it is roundly admitted, were educated only in the most desultory manner in the principles of the science and only by haphazard methods in the practice, while the various educational boards, the older universities defaulting as much as or more than the various corporations, did not press for a high standard from examinees; further, the general conduct of the clinical and domestic side of a superlatively important branch of medicine was not creditable to the practitioners, and obstetrics as carried on by midwives was an unregistered vocation. The last 50 years have seen a great change, and while at the beginning of this period progress along scientific lines and emancipation from ancient shackles took place but gradually, the days we now live in have seen remarkable improvements. They need not be enumerated for they jump to the eye. In the Lloyd Roberts Lecture, given in the opening pages of this issue, Dr. Herbert Spencer takes as his subject the Renaissance of Midwifery, and in a fascinating oration there will be found a history of the early phases of the science and art of midwifery, showing alike what scientific foundation the practitioners of post-Listerian days had to build on, and what ancient lore, tradition, or art they had to respect or discard. Anyone who reads this lecture and also a report, which appeared in The Lancet last week (p. 1011), of the interesting debate which took place on Nov. 6th at the Royal Society of Medicine, will have before him an illuminating picture of the fundamental revolution which has occurred within the last generation, and will see also what a number of problems, clinical, bacteriological, and administrative, remain for solution.

The debate at the Royal Society of Medicine, held between the appropriate Sections of that Society and the Society of Medical Officers of Health, had for its general subject the notification of puerperal sepsis, words which would have had no meaning for those to whom sepsis was an absolute mystery and prevention an undreamt of ideal—namely, the exponents of midwifery before the days of Lister and Semmelweiss. To-day the practice of midwifery means, above all things, the avoidance of sepsis, especially by the early recognition of abnormal conditions. Notification of puerperal sepsis, as Dr. J. S. Fairbairn pointed out in opening the discussion, becomes necessary when the first line of defence—prevention—has been breached; the next line of defence to be held being the early detection and elimination of disease, which is only possible if notification is employed generously towards suspicious cases. The immediate notification of all cases where legitimate doubt arises Dr. Fairbairn would allow to be difficult, if only because it would involve amendment of Acts of Parliament; but he made the valuable suggestion that obstetric consultations and bacteriological examinations might be arranged in local areas, and a certain amount of hospital accommodation for observation, nursing, and treatment be provided in connexion with such movements. This is a suggestion which, we hope, will bear fruit, for nothing would be more likely to improve the status of midwifery. If practitioners in any area had a centre where, upon voluntary notification of all cases of fever in childbed, scientific assistance and, in suitable cases, institutional help would be forthcoming, the advantages placed at the disposal of both patient and medical adviser would be difficult to exaggerate. In the debate which followed Dr. Fairbairn's opening the position of notification of puerperal fever, as it exists to-day, was severely criticised both on the grounds of its range of employment and its practical results, while the need for a better supervision of the midwife was insisted upon, though with due recognition that the Midwives Act had constituted a great advance. Of this there can be no doubt, but if, as Dr. R. A. Lyster contended, the level of midwifery practice could be substantially raised by efficient supervision and inspection, the value of more efficient notification would become immediately obvious. At the General Congress of Obstetrics and Gynæcology to be held next year at the Royal Society of Medicine, Dr. Russell Andrews will preside over a reunion of the various British and Irish societies devoted to the subjects of gynæcology and obstetrics, when one of the subjects set for discussion is the treatment of puerperal sepsis. To this discussion two whole sessions will be devoted, and it will be introduced by reports from two special committees in London and the North of England, when the grave interest of the matter will secure widespread attention for the conclusions of the congress. From all that has been written above it will be seen that now at least the medical profession is alive to the supreme importance of a scientific service of midwifery, and the status of work along all its lines is thereby indefinitely raised.

The importance of regular watch over pregnancy is implied in the Midwives Acts, 1902 and 1918, and the conditions in which medical help must be sent for by the registered midwife are set out in the rules framed by the Central Midwives Board; any improvement in the system of notification of puerperal fever would be in consonance with the whole meaning of the Acts. In all cases of illness of the patient or child or of any abnormality occurring during pregnancy, labour, or lying-in, the registered midwife must call to her assistance a registered medical practitioner, and the conditions referred to are broadly outlined in the rules of the Central Midwives Board. A large proportion of the midwifery practice of the country reaches the medical profession through the medium of the midwife, that proportion including, of course, most of the difficult and abnormal labours. We are publishing this week as a Special Supplement to The Lancet a treatise on the modern methods employed in the indicated circumstances, written by a group of well-known authorities. The various authors treat in this work of things as they are, in order that the advice given may be immediately useful; but the underlying lesson of the whole work is that things as they are too often represent things as they should not be, and as they will not be when the preventive side of midwifery comes more fully into realisation.

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THE HEALTH OF THE SCHOOL CHILD.[1]

The Annual Report of the Chief Medical Officer to the Board of Education for the year 1923, which makes its appearance this week, should be widely read by the public as well as by the medical profession, for unless, in addition to details concerning the prevalence of pathological conditions or the progress of sanitary developments, the general pattern of the school medical service is understood, public coöperation will not be intelligently directed. And the goodwill as well as the practical help of the public is necessary to-day in all the circumstances, preventive and curative, domestic and institutional, of any medical service. The Report deals with an interesting year, for during 1923 the restrictions following the need for national economy were becoming less stringent. Consequently authorities were permitted and even encouraged to consider certain extensions of their programmes where the wisdom of the proposed courses was obvious; and although the result of such increased activities as have occurred cannot yet be recorded, there is evidence in the Report that what was done in 1923, and is being done in 1924, will make satisfactory reading in subsequent documents. With a candour that is commendable in the head of a public service, Sir George Newman admits that the close scrutiny of the expenditure which was compulsory during the years immediately following the war, even while the limits imposed were vexatious, may have had a valuable influence; it has resulted probably in an increased attention to the matters where special economy could not be expected, and this has made for general efficiency.

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[1] Annual Report of the Chief Medical Officer of the Board of Education for 1923. H.M. Stationery Office, Adastral House, Kingsway, London, W.C. 2; or 120, George-street, Edinburgh; or through any bookseller. 1924. Pp. 194. 2*s*.

To the two main conditions affecting school health *en masse*—namely, the particular physical state of the children and their sanitary environment at school—Sir George Newman adds a third, for he speaks strongly of the moral influence that insanitation and unclean premises, defective light and insufficient ventilation have on the young. Not only do such things prejudice the health of the children, but they are deprived of the advantages of proper hygienic models and lose a valuable side of their training. There is no doubt that in many of the older schools, especially in country districts, the premises and furniture have declined from a tolerable health standard. This is a point which has often been quoted in our columns from the reports of school medical officers, and in Sir George Newman's Report it receives similar notice. Now when children have to spend their school hours in cold class-rooms, ill-lighted and wrongly ventilated, using unsuitable desks and unprovided with proper sanitary conveniences, the lessons to be learned from medical inspection become distorted, for the school itself may be a source, or at any rate the fomenter, of the mischief, the care of the officials being to some extent expended in the counteraction of mischief of official origin. It is of the first importance that medical inspection should be regular, thorough, and inclusive, and that common sources of defects should be ascertained; this should be followed by treatment, including as far as possible the provision of wholesome surroundings. During 1923 the specific requirements of the Board of Education as to medical inspection of children in elementary schools led to a routine medical inspection of 1,754,919 children, while a further 739,390 children were examined as specials, not being normally due for routine medical inspection, but recommended for the procedure by the school authorities upon the ground of particular physical or mental defect. There was a fall during the year in the number of children inspected as entrants, but this it appears can be attributed not only to leakage following on administrative defect, or—which is the same thing—a misunderstanding of official instructions, but also to the fall in the number of births registered in 1918–19. But one of the most satisfactory passages in the Report testifies to the steady and general increase in the number of parents who attend at the routine medical examinations, while refusal by the parents to permit their children to be medically inspected has dwindled to negligible proportions, and is to-day instigated almost always by a desire to conceal neglect. "Every year I am impressed," says Sir George Newman, "with the value and importance of the coöperation of teachers in the physical care of the school child," and everyone with experience as medical officer, as manager, or, as member of a care committee, knows that more than half the value of school inspections is due to coöperation between the parents and teachers in smoothing the way of the medical officer.

The findings of medical inspection for the year, so far as the figures allow them to be recorded, tell rather a sad tale at first sight, but closer consideration shows that the majority of the defects are such as do not endanger life, and do not even impair a general physique, though their neglect may lead to both these serious issues. A table based on the returns from London and 24 large representative areas shows the incidence in various groups of defects among 630,665 children of school age in 1923, when, as might be expected, by far the largest number of defects occur either under the heading of defective vision or under that of nose and throat disease, leaving dental troubles aside, the incidence of defect per thousand of the children inspected being 62 in the case of vision and 43 in the case of nose and throat. The early ascertainment of defective vision is now being fully promoted by school authorities, and to-day out of 317 local education authorities only 14 remain which make no provision for the diagnosis and correction of visual defects. Another table in the Report shows the enormous volume of work done by these authorities, but shows also that a considerable number of children recommended by the ophthalmologist for spectacles do not obtain them or do not wear them. There were, in fact, during 1923, 135,269 children who were ordered spectacles, while 15,238 failed to obtain them; this is a serious leakage. Teachers are here able to render valuable assistance to the school medical officer by encouraging children to use their glasses, and we may hope that the popular prejudice against the use of glasses will soon die out.

We hope to return to some of the many interesting questions in general and special pathology, as well as in administration, which this Report introduces, and in the meantime recommend its perusal to all our readers.

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MEASLES IN FRANCE.

Loss of life from measles is being closely scrutinised in France, where two apparently self-contradictory statements in regard to it are current:—

(1) Measles is less often fatal than scarlatina, or whooping-cough, or diphtheria.

(2) Measles alone accounts for more deaths than do scarlatina, whooping-cough, and diphtheria combined.

These propositions are certainly *not* true of this country in non-epidemic times, but the statistics and other data in support of them are worth quoting in extenso because they afford valuable clues to prevention and treatment. According to Dr. Ruggles George, of Toronto, the deaths from diphtheria in 1921 in the Canadian registration area numbered 1297. In the same period and area the deaths from scarlatina numbered 410, from whooping-cough 626, and from measles only 297. Again, in the United States registration area in 1921 the deaths from diphtheria numbered 15,683, from scarlatina 4718, from whooping-cough 8070, and from measles only 3790. Many other statistics could be quoted in support of the first statement as it appears above. In support of the second statement, it may be pointed out that during 1923 the death-rate per 100,000 persons in Paris was 0·3 for scarlatina, 0·6 for whooping-cough, 0·5 for diphtheria, and 1·6 for measles. In the *Annales de Médecine* for October there is a paper by Prof. R. Debré and Dr. P. Joannon, whose indictment of measles as a most malignant disease is supported by a wealth of statistical evidence. For example, in the period 1911–13 the annual mortality for every 10,000 infants under the age of 1 year in French towns with a population of more than 30,000 inhabitants was 31·4 from measles. The corresponding figure for whooping-cough was 20·2, and for scarlatina, whooping-cough, and diphtheria combined it was 25·9. It is probable that the actual mortality from measles is even higher than these figures would suggest, for when measles is unassociated with an eruption, the fatal capillary bronchitis or broncho-pneumonia to which it gives rise is liable to be notified as the primary cause of death. And when the comparative importance of diphtheria and measles as causes of deaths among hospital cases is studied, it is well to remember that the two diseases may coexist in the same patient and that diphtheria may not infrequently be given an unjust share of the blame.

Why, it may well be asked, is the comparative mortality from measles so much greater in France than in Canada, in large than in small French towns, and in the poor than in the rich quarters of Paris? This last-named difference is most striking. According to Prof. Debré and Dr. Joannon, the mortality from measles among children under the age of 6 years is four times greater in the three poorest than in the two richest arrondissements. And most of the few deaths in these rich quarters of the town occur in working-class families. As the authors point out, there are probably many factors accounting for these extraordinary differences which would at first sight suggest that we are dealing with two different diseases: one a rapidly fatal disease among slum children, the other a mild and transitory infection in children living in the country, the offspring of well-to-do parents. One factor no doubt is dominant: the slum child is more readily killed by measles than the country child because slum conditions favour development of the disease at an earlier age when the defences of the body are still very incomplete. It is significant in this connexion that of the 6266 deaths from measles in childhood in Paris in the period 1904–13 as many as 5132 occurred in children under the age of 3 years; there were only 488 deaths from measles among children over the age of 5. Another factor of sinister importance may be the hospitalisation of poor infants in Paris. Here, as elsewhere, there can be no doubt that measles is often contracted in hospitals to which infants and children have been brought for some other complaint. Again, the infant admitted to hospital for measles is liable to contract in hospital such diseases as diphtheria and whooping-cough, combinations with a very high mortality-rate. In connexion with the hospital problem there is also the delicate question as to the quality of the nursing and effectiveness of the isolation provided. These and other considerations bring us to another point: might it not be better to distribute the sick infants of the poor in small, carefully selected, and well-aired homes than in large creches where opportunities for infection are inevitably great? In this connexion Prof. Debré and Dr. Joannon point out that during 1922 as many as 37 of the 115 creches in the Paris area had to close on account of measles. Unless Schick and Dick testing and immunising come widely into vogue, the time may not be far distant when we may come to look back on the large hospitals for infants suffering from measles and other infectious diseases in the same light that we see the maternity hospitals belonging to the period when puerperal fever was an uncontrolled and uncontrollable disease.

Happily, however, there is a new factor calculated to arrest this flight of children from the hospital and to prevent our regarding it as a centre where the virus of measles becomes exceptionally malignant by frequent passage, massive infection, and secondary infections. This factor is the prophylaxis or abortion of measles by the injection of the serum of convalescents. It is many years since Nicolle and Conseil carried out their pioneer work in this field, in which the advances made during the past two years have proved most fruitful. In a paper by Dr. J. Paraf in the same number of *Annales de Médecine*, to which we have already referred, an account is given of the use for the past two years of this procedure, which has proved to be as innocuous as effective. In a children's ward he has never had a case of measles develop in spite of exposure to infection, and he has only one unfavourable comment to make on this treatment. The immunity conferred, sufficient though it may be to protect the child while in hospital, is so brief that it may be necessary to repeat an injection more than once during the same year. To get over this difficulty it has been suggested that the injections should be deferred till after the fifth day of the incubation period, so that instead of effecting a transitory passive immunity an attempt should be made to develop active immunity by modifying, but not completely aborting, the infection. Dr. Paraf does not express great enthusiasm for this procedure, which, while it may have a useful place in a large epidemic, adds to the immediate risks for the individual case, and which also is calculated to favour rather than prevent the spread of the infection to other persons. It is obvious, therefore, that the last word has not yet been spoken with regard to this procedure which is already extensively adopted in France, Germany, and the United States. But it promises to bring little short of a revolution in our conduct of hospitals for infants whom we have not hitherto been able to shield from one of the most infectious and deadly diseases of early childhood.

THE NEED FOR EXTENDED SICKNESS INSURANCE.

SPEAKING at a meeting of the Insurance Institute of London on Nov. 17th Lord Dawson emphasised the need for extended sickness insurance, especially among the middle classes. The present position in this country was, he said, that the rich on the one hand could provide for themselves, while the labouring classes were provided for by the National Health Insurance Acts. The middle-class family—that is, where the breadwinner's income did not exceed £1200 a year—was often cramped to a quite unjustifiable degree by the incidence of sickness. The growth of knowledge in medicine had brought with it increased cost in medical treatment, and to secure the very best that science could offer for the treatment of disease was becoming a burden too great for the middle-class home where the lives and prospects of the healthy members might be sacrificed to the consideration of one ailing relative. The solution of the problem, Lord Dawson thought, lay in providing the treatment of sickness outside the home, as was done in America and the Dominions, and if we were to avoid the pitfall of nationalisation of medicine, which would sweep away the most valuable factor in curative work—namely, the personal relationship between practitioner and patient, some adequate scheme of health insurance for the middle classes must be evolved. What was needed was organisation, and he thought that the lead for adequate medical treatment might be taken by local communities instituting health centres which would be available for their citizens on payment according to their capabilities. This had already been attempted by the city of Bath. Lord Dawson thought that the formation of health societies in local communities might go far to solve the big problem of administration and inspection to prevent abuses in such schemes. He was of the opinion that an insurance company—which was an institution run on business lines—might make an experiment with a well-thought-out scheme in some secluded local community. In discussing Lord Dawson's paper, Sir Alfred Watson pointed out the difficulty from the commercial point of view for an insurance company in fixing satisfactory premiums to secure the cost of medical benefits in a family; for the increasing cost, following continued medical improvements, opened up the possibility of future loss. But in some form or another we trust that Lord Dawson's suggestion may take concrete shape.

Annotations.

"Ne quid nimis."

SMOKE ABATEMENT.

THERE is general agreement that a smoke-polluted atmosphere not only interferes with the amenities of life but also affects the health of the community. In summarising the annual health reports of the various districts we have frequently drawn attention to the higher death-rates from respiratory diseases, when town is compared with country and when a dirty-aired town is compared with a clean-aired town. Estimates are put forward from time to time to show that most of the smoke pollution in industrial towns, perhaps two-thirds or three-quarters, is caused by domestic fires. It is somewhat difficult to reconcile these estimates with the smoke-palls and gloom of, say, the manufacturing towns of Lancashire and the West Riding as compared with the comparatively clean air of towns such as Derby, Leicester, Nottingham, and Swindon. But perhaps it is waste of time to endeavour to apportion the blame accurately between domestic and industrial smoke, for both are gross offenders. It is hardly questioned now that, except for a few metallurgical processes, industrial smoke is unnecessary. Chimneys serving boiler-furnaces where proper appliances and adequate plant are provided need not offend if due care is exercised by the stokers. Thus, with a trifling alteration in the law, industrial smoke might be a thing of the past if local authorities, stimulated by the Ministry of Health and backed by an enlightened public opinion, would but do their duty. At the recent conference in Manchester, promoted by the Smoke Abatement League, every phase of the question was discussed, and the proposition was laid down that in order to get the public to use a smokeless fuel the price of such fuel must not exceed that of coal. It was further shown that progress was being made towards the production of such a smokeless fuel for domestic use. Dr. H. Osborne, medical officer of health for Salford, makes a valuable contribution to the whole subject in his annual report for 1923. He emphasises the working man's liking for the cheerful blaze of the open fire, and states its advantages over the gas-fire on health grounds as a promoter of ventilation and a useful destructor for house refuse. His remedy for domestic smoke is therefore the prohibition of the burning of raw coal in open grates and the substitution of a smokeless fuel. One such product he has recently tested. It gave a beautiful glowing fire, burned away without any attention to a soft powdery ash, and gave off no smoke. He does not mention, however, how this fuel is likely to compare in price with raw coal. Dr. Osborne mentions the health value of the visible rays from an open fire, but presumably the gas fire would retain this value. Gas has the advantage over other fuels in its comparative freedom from sulphur products. He further states that the gas-fire is a poor ventilator, that there is a much larger proportion of carbonic oxide in its flue gases, and that the danger of down-draught bringing carbon monoxide into the room is considerable. We recognise that there is much carelessness in the fixing of gas fittings. They are frequently fixed without proper flues, and no adequate attention is given to the important matter of testing the gas fittings for leaks. Every gas company should in return for its monopoly have placed upon it the statutory obligation to test for leaks on request and in return for a reasonable fee. As was pointed out frequently in the recent conference at Manchester, the first step in securing cleaner air is to convince the public that domestic smoke is unnecessary, and that the air of our towns might be nearly as clean as the air of the country. When a powerful educated public opinion has been created, we feel sure that the competition between the producers of electricity, gas, and smokeless fuel will meet the demand.

RADIOGRAMS OF THE LUNG IN PNEUMONIA.

La Semana Medica gives, in a recent issue, what Dr. Carlos Hensen, the writer, probably with justice claims to be unique, a series of eight plates of the lung in an attack of acute lobar pneumonia. They were taken in a period of 12 days (the first apparently within a few hours of the initial rigor) at the patient's request, and they illustrate the condition as shown by X rays on the first, second, fourth, sixth, eighth, ninth, tenth, and twelfth days, but the exact date of the last is not given. They form a very interesting series, though not adding anything material to our knowledge of the pathology of the disease. Perhaps the most interesting point is the very considerable enlargement of the mediastinal glands, which shows after the lung has practically cleared up. This glandular enlargement does not reach its maximum till after the disease has begun to subside and is most prominent in the last picture of the series. The other point is that the consolidated area as seen extends well over to the right side of the vertebral column. This accords with the clinical fact that tubular breathing is so frequently heard along the paravertebral border of the unaffected side without implying any bilateral involvement. The series is worth studying, if only as illustrating the complete accord of the X ray and clinical findings, and is likely to remain unique owing to the rarity of the circumstances which would justify taking radiograms in acute pneumonia.

TUBERCULOSIS DISPENSARIES IN FRANCE.

THE high tuberculosis death-rate from which France has suffered for many years appears to be declining as a sequel if not a result of the well-directed impulse given to the anti-tuberculosis movement by the Rockefeller Foundation. The work of French organisations has also been remarkably successful in several instances, and an account published by Prof. P. Courmont in the *Journal de Médecine de Lyon* for October shows, among other things, how direct the relation may be between tuberculosis dispensary work on the one hand and the decline of the tuberculosis death-rate on the other. The first dispensary in Lyons was established in 1905 in coöperation with the Bacteriological Institute. After 1917 several new dispensaries were established, a total of seven being provided up to the present time. The functions of these dispensaries are much the same as those in this country; examinations are made and advice is given in the dispensary itself, whence visiting nurses, numbering 18, go to the patients' homes and help with advice and in other ways. The dispensaries also provide for disinfection of rooms, furniture, and clothing, help to transfer infants from infected to healthy homes, and keep in touch with the school medical service. Altogether there are more than 500 tuberculosis dispensaries in France, and if the results obtained by the dispensaries in Lyons are a true sample of the achievements of the French dispensaries as a whole, it is obvious that they are carrying out a most excellent work at an amazingly small cost. In 1923 the annual cost per patient treated by the dispensaries in Lyon was less than 100 francs. In the same period 2049 children were attended to, as many as 711 being sent to the country or to preventoriums. A total of 19,468 visits were paid by the nurses, 3040 families were visited, 3483 patients were treated, and 7000 persons were kept under observation.

Compulsory notification of tuberculosis not having yet been introduced into France, the notifications of the causes of death are the only means by which the incidence of this disease can be determined, and using this criterion, Prof. Courmont is able to publish some very interesting figures. In the period 1900–1905, the average annual mortality from tuberculosis in Lyons per 10,000 inhabitants was 35·4. In the five-year period 1919–1924 this figure had fallen to 22·7. It might be argued, as Prof. Courmont admits, that this decline depended on other factors than the dispensaries—i.e., on better housing and other economic conditions. To test the validity of this argument that the dispensary system is mainly responsible for this improvement, he has compared the decline in the tuberculosis mortality in the parts of Lyons provided with dispensaries with that in other parts without dispensaries. Lyons is a town with over half a million inhabitants, the Rhone cutting it into two approximately equal halves. In the four arrondissements on the right side of the river where, until 1921, there were only two dispensaries, the decline in the tuberculosis death-rate between 1905 and 1923 was only from 31·41 to 26·2. On the other hand, in the same period there was a decline from 38·45 to 19·7 in the overcrowded quarters on the left side of the river, where the work of the dispensaries had been most energetic. In one arrondissement in which, for various reasons, no dispensary could be established, the fall in the tuberculosis death-rate in the period under review was only from 36·9 to 30·6. The area in which the oldest dispensary was established showed a fall in this mortality in the same period from 41·4 to 18·2. Apart from the fact that the one arrondissement was supplied with a dispensary and the other not, there was nothing to distinguish the one from the other as far as health conditions were concerned. Figures such as these are convincing testimony to the value of the dispensary system.

LUMBAR HERNIA OF THE KIDNEY.

OWING to the extreme rarity of this condition we draw attention to a case recently published by Dr. Ciaccio,[1] of the University of Palermo, in which the diagnosis was proved by operative intervention. Hitherto the only case in which the content of a lumbar hernia was the kidney itself was described by Monro in 1803. J. Macready, in THE LANCET of November, 1890, gave a table of 25 cases of lumbar hernia, but in none of them was the kidney itself involved, and much confusion has also arisen by describing as lumbar herniæ certain traumatic conditions produced in the lumbar region as the result of wounds, or acute suppurative processes, or weak cicatrices. In cases of true lumbar hernia Grynfeltt and Lesshaft drew attention to the fact that they did not occur in Petit's inferior triangle bounded by the internal oblique and the posterior aponeurosis of the transversalis muscle, but in the "trigonum lumbale superius," which is a space below the twelfth rib when the latissimus dorsi is turned aside where the aponeurotic expansion of the transversalis is covered only by the latissimus. In the case now published, that of a female infant, a swelling about the size of a nut was noticed at birth in the right lumbar region, which gradually increased in size. When seen at the age of 18 months the swelling was the size of a lemon, rounded and well defined, smooth, elastic, but not fluctuating, and dull on percussion. It extended from the lower border of the eleventh rib to the iliac crest, and from the paravertebral line to the posterior axillary line prolonged. The swelling could be reduced but not completely, and without gurgling; when the child cried an impulse was imparted to it. Accurate examination failed to palpate the body of the twelfth rib; only a small bony nodule about the size of an almond could be felt. At the operation the swelling proved to be the kidney, normal in size but congested. It was easily reduced into the abdominal cavity, and the hernial canal was seen as a fibrous ring, oval in shape, with the long axis upright. During the process of closing this ring a small meningocele was discovered and removed. Recovery was complete and uneventful. This interesting and almost unique case, that of Monro being the only other described in which the hernial content was the kidney itself, points to the conclusion that lumbar hernia, like all herniæ in other regions without exception, is due to a defect in formation, and has its origin not in Petit's triangle, but in the superior costo-lumbo-abdominal triangle of Lesshaft, which is larger and offers less resistance. The real solution is to be found in a developmental error of the medullary groove. The vertebral arches as well as the muscles of the trunk originate from the same somites, and it is thus easy to understand that defects in the vertebral arches with spina bifida and meningocele, as well as defects in the conformation of the muscles of the back (in this case the oblique muscles and transversalis) have in common the same origin. And in Dr. Ciaccio's case, moreover, the absence of the twelfth rib, reduced to a mere bony stump near the transverse process of the twelfth dorsal vertebra, accounts for the defect in those muscles which are normally attached to it. In addition, the absence of the twelfth rib corresponded to some other important anomaly of development in one or more of the vertebral arches, anomalies which could not be ascertained precisely in detail, but which must certainly have existed as demonstrated by the meningocele met with during the operation.

THE SAFETY OF THE SCHICK TEST.

THE toxin-antitoxin test and the method of active immunisation which may succeed it appear to be free from danger in this country. No alarming or permanent ill-effects were produced in any one of the 2104 children and adults immunised recently in Edinburgh by the officers of the public health department, and Dr. W. T. Benson tells us[1] that he was able to obtain the consent of 42·3 per cent. of the parents of 6573 children under 10 at a group of Edinburgh board schools. Only four withdrawals of consent occurred after witnessing the effect of the first injection, and complaints from parents amounted in all only to 1·4 per cent. of the total number of children injected. The utmost inconvenience was a febrile reaction necessitating confinement to bed, mostly in the age-group 10 to 12. All the children recovered by the fourth day after the initial injection and suffered less from the later doses. The material used for immunisation was prepared by Dr. R. A. O'Brien and supplied from the laboratories of Messrs. Burroughs Wellcome. The safety of the method has thus not been in serious question. Unfortunately, this has not been so everywhere. In the early part of the present year 19 students at Concord Academy, Massachusetts, were rendered so ill by the Schick serum that they were obliged to remain in darkened rooms for three weeks. The toxin-antitoxin mixture used had passed the usual tests but, as was afterwards discovered, had been exposed to an unusually low temperature, below 0° F. in fact. Severe and prolonged freezing is sufficient to cause dissociation of toxin and antitoxin, with the result that the mixture becomes highly toxic. The occurrence naturally excited widespread alarm, but anxiety was allayed by the knowledge that its repetition could be prevented by avoidance of freezing. Our Vienna correspondent, however, sends us (see p. 1086) details of an occurrence in a children's hospital near Vienna of a far more terrible kind. A newly admitted infant developed diphtheria, whereupon seven other infants were injected with toxin-antitoxin mixture and promptly died of heart failure. No blame, it is stated, attaches to the medical officers of the hospitals, who followed precisely the directions given on the ampoules. The serum apparently was in order when bottled, but had been on hand for a prolonged period. It was supplied by what was at one time the State-controlled Serological Institute of Vienna, which is now a commercial undertaking. In Prof. Paltauf's time—he died early in the present year—the Institute was a model for other European centres of like nature, and a host of important publications have issued from it. The lesson is obvious. It is not safe to risk toxin and antitoxin becoming dissociated in the mixture by long keeping. Schick serum must be fresh. Experience of this kind is gained too dearly; precise and rigid control by responsible authority is required in the case of preparations so potent for good or for ill.

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[1] Il Policlinico, Surgical Section, Oct. 15th, 1924.

[1] THE LANCET, Nov. 8th, p. 949.

THE FUNCTION OF STATISTICAL METHOD.

THE Industrial Fatigue Research Board has issued, as No. 28 of their series of reports,[1] a lecture by Mr. Udny Yule on the Function of Statistical Method in Scientific Investigation. It would be hard to conceive of a more competent and more attractive expositor than the new President of the Royal Statistical Society, and his lecture deserves the widest possible audience. Mr. Yule points out that "statistical methods are methods for handling and elucidating the meaning of data affected by 'disturbing causes,' or generally by a multiplicity of causes. Hence their very wide applicability." It follows, of course, that the experimental method, which aims at the isolation of supposed "causes" and presumed "effects," will, the nearer it attains to its ideal, require fewer and simpler statistical methods. Indeed, in the case of perfect isolation, the only statistical problem to be solved is, What is the probability that this sample adequately specifies the characters of the "universe" from which it came? A question, however, which is not always easy to answer. This consideration may, perhaps, qualify Mr. Yule's moral: "Let the experimenter who is driven to use statistical methods not forget this, that the very fact that he is compelled to use statistical methods is a reflection on his experimental work. It shows that he has failed to attain the very object of experiment and exclude disturbing causes." Still, even if we accepted Mr. Yule's moral in its full rigour, the field of the statistician would remain immensely large, and the series of illustrations of method drawn from agriculture, biology, bacteriology, and industrial physiology, which he discusses, is a witness of that truth.

BACTERIOLOGY OF HUMAN MILK.

ATTRACTED by an observation upon a case of infantile gastro-enteritis, in which identical streptococci were isolated from the infant's stools and the mother's milk, Prof. L. S. Dudgeon and Dr. R. C. Jewesbury[2] have investigated the bacteriology and cytology of human milk in a large number of nursing women, and have also examined the influence of breast infection and mastitis upon the health of the child. Some of their conclusions are of considerable general importance and may be briefly summarised. They state emphatically that their results throw no doubt upon the unquestionable value of breast-feeding, but at the same time direct attention to this possible source of infection in breast-fed infants where the source is otherwise obscure. The commonest organisms found in the milk are staphylococci, as was pointed out by Cohn and Newmann in 1891, and many of these, including most of the albus variety, may be regarded as unavoidable contaminators: probably they exist saprophytically in the ampullæ of the larger ducts and, as suggested by the experiments of these observers, tend to pullulate in the intervals between suckling. Streptococci are also found in about 40 per cent. of cases, but there is little evidence that these are often of a pathogenic variety. A rather important series of observations was made upon the cytology of the milk and it was found that in some cases pus cells were present in large numbers, particularly in association with *Staphylococcus aureus*. Cases of this class appeared to be definite infective conditions of the breast and many of them subsequently proceeded to mastitis and abscess formation. From the stools of infants suckled by these mothers it was usual to recover the organisms found in the milk, and though there was often no evidence of harm accruing to the child it is obviously undesirable that these pyogenic cocci should obtain access to the infant's organism if this is preventable. The cytological examination of milk would appear to be a very informative procedure where breast infection is suspected, and often yields positive information of an impending mastitis before the clinical signs of this have developed. One interesting side issue may be quoted, that in human milk infected with staphylococci and *B. coli* no clotting occurs, such as is usual with cows' milk. This may perhaps go towards explaining the apparent general immunity from gastro-intestinal disorders of breast-fed infants consuming such highly-infected milks and their frequent occurrence in those fed on cows' milk which may be similarly infected.

THE PITUITARY PRINCIPLE.

IN the October number of the *Bulletin* of the Johns Hopkins Hospital Prof. J. J. Abel has given an account of his recent work in which he attempted to isolate the active principle of the posterior lobe of the pituitary body. As yet a pure crystalline compound has not been obtained, but the preparations have undoubtedly an extremely high order of activity; thus a striking contraction of the isolated uterus of a virgin guinea-pig is produced by a dilution of a "pituitary tartrate" so great as 1 part in 18,750 millions. Perhaps the chief interest of Abel's work is in the indication it gives of the intensity of the physiological activity of such a hormone as this; for it is not claimed that this tartrate is even approximately pure, and it may well be that the activity present is due to mere traces of the hormone clinging to the tartrate of an inert compound. Consequently the activity of the pure material, if ever it is isolated, may be such that it will act not only in the paltry dilution of 1 in 20,000 million, but also in dilutions of 1 in 1,000,000 million. Such considerations help to explain the failure of Abel and his colleagues on the one hand, and of H. W. Dudley, working in this country on the other, to achieve the final isolation of the pituitary active principle, and they make it likely that a considerable time must elapse before chemical methods will be sufficiently refined to bring success.

MEDICAL SCHOOL BUILDINGS.

MANY people find it easier to get a house to their mind by altering an old building rather than designing a new one from the bottom. And those who want to make the best of any of the princely benefactions that fall to medical schools nowadays have a great deal of anxious thought in designing their new buildings. The Rockefeller Foundation, most princely of benefactors, has now itself issued[1] a series of useful descriptions of a variety of recent buildings which have been put up, with some account of the methods of teaching in use in a number of them. Accounts, pictures, and plans are given of the new anatomy buildings at University College, London, Peking, Brussels, Würzburg, Basle, and New Haven, of the department of pharmacology at Yale, of the pathological institute at Graz, of the Boston Lying-in Hospital, of the department of obstetrics and gynæcology at Peking, and of the Thorndike Memorial Laboratory at Boston. The plans are clear and informative, and will be of real value to those who have the responsibility for erecting similar departments elsewhere. The volume is edited by Dr. R. M. Pearce, director of the division of medical education of the Rockefeller Foundation, and further instalments are promised as material becomes available. At the moment the two descriptions which will probably be of most interest to our readers are those of the Boston Lying-in Hospital and the Thorndike Memorial. The conviction that the teaching of practical midwifery is not as good as it should be is widespread, and better conditions in the maternity hospitals are beginning to be realised, notably in the new building at University College Hospital. The movement will no doubt spread and new equipment will be needed in many places. In the Thorndike Memorial is realised the combination of ward and laboratory, which is also one of the popular items in the reform of medical education and investigation. At present we try to achieve the combination by adding laboratories to the wards of general hospitals. It is a further step, and for some purposes an absolutely necessary one, to add wards specially reserved for investigation rather than the treatment of the sick poor to laboratories, and this new building in Boston suggests a convenient way of doing it.

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[1] Report No. 28, Industrial Fatigue Research Board. London: H.M. Stationery Office. 1924. Pp. 14. 6d.

[2] Journal of Hygiene, October, 1924.

[1] Methods and Problems of Medical Education, First Series. The Rockefeller Foundation, 61, Broadway, New York City.

The Services.

COLONIAL OFFICE.

THE Secretary of State for the Colonies has appointed Sir William Prout, C.M.G., O.B.E., M.B., C.M., late Lt.-Col., Royal Army Medical Corps, to be Senior Medical Adviser to the Colonial Office in London, in succession to Sir John Rose Bradford, K.C.M.G., C.B., M.D., F.R.S., who has resigned his appointment.

Mr. A. E. Horn, C.M.G., M.D., has been appointed Junior Medical Adviser, in succession to Sir William Prout.

COMMISSIONS IN ROYAL ARMY MEDICAL CORPS.

It is officially announced that not fewer than 20 commissions in the R.A.M.C. will be granted to successful candidates in an examination to be held in London on Jan. 28th next. Applications to compete must be made not later than Jan. 18th, and meantime a full statement of the duties and emoluments of the service can be had on written application to the Under Secretary of State (A.M.D.1), The War Office, Whitehall, London, S.W. 1.

ROYAL ARMY MEDICAL CORPS.

Capt. F. G. A. Smyth is granted the temp. rank of Maj. whilst empld. as a Dept. Asst. Dir. of Pathology.

Maj. R. F. M. Fawcett retires on ret. pay and is granted the rank of Lt.-Col.

ARMY DENTAL CORPS.

Lt. T. D. Corke to be Capt. (prov.).

RESERVE OF OFFICERS.

Supplementary Reserve.—Lt. C. W. Badger, late R.G.A., Spec. Res., to be Lt.

TERRITORIAL ARMY RESERVE.

Lt.-Col. A. M. H. Gray (Supernumerary for service with University of London O.T.C.), from the Active List, to be Lt.-Col.

THE FEES OF CIVILIAN MEDICAL PRACTITIONERS.

It is announced that the fee of 3*s.* 3*d.* authorised by the King's Regulations and Admiralty Instructions to be paid to civilian medical practitioners in respect of visits of ratings to the doctors' residences or surgeries for consultation will be reduced to 2*s.* 6*d.* as from Nov. 1st.

MEDICAL PRAYER UNION.—A meeting will be held, by kind invitation of Dr. Mary Scharlieb, at 149, Harley-street, W. 1, on Wednesday, Dec. 3rd, at 8 P.M. An address will be given by the Rev. R. Calder Gillie on Personality: God's Chosen Channel of Self-revelation. An intimation of intention to be present will be welcomed by the hon. secretary, Dr. Tom Jays, Livingstone College, Leyton, E. 10.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCVII.

THE TREATMENT OF CLEFT PALATE.

MUCH has been written on the subject of cleft palates, and many variations of treatment advocated; nevertheless the end-results of treatment, as seen in middle-age in a large proportion of cases, are far from satisfactory from the points of view of speech and appearance. It is evident that more attention has been paid to the actual surgical closure of the cleft in early childhood than to the prospects of functional ability in later years.

Movements of the Soft Palate during Speech.—The action of the muscles which enter into the formation of the soft palate is to raise or lower the palate to enable it to make or break contact with the posterior wall of the pharynx so as to close off the oral from the nasal pharynx, and the functional success of the treatment is almost entirely dependent upon the restoration of this action. However successfully the cleft in the hard palate may be closed, unless a soft palate is obtained which will reach the posterior wall of the pharynx when raised and so enable the patient to shut off the oral from the nasal pharynx during speech, the result must be regarded as a surgical success but a functional failure.

Langenbeck and Lane Operations.—The usual operations performed in this country are variations of the Langenbeck and Lane operations, which have the common factor of the closure of the cleft by soft tissues, with the result that a certain amount of scar-tissue is formed. In view of the great contracting tendency of scar-tissue little wonder that after these operations the parts concerned tend to be drawn towards the centre-point of contraction—i.e., the middle of the palate. The dental arch is contracted with resultant loss of occlusion of the teeth, the pre-maxilla (in cases of double cleft) is drawn backwards with resultant marked facial deformity, and the delicate tissues of the soft palate are drawn forward, thus causing it to lose ability to perform its function of closing off the oral from the nasal pharynx, with resultant imperfect speech. Further evidence of this contraction may be obtained by X rays, when it will be observed that the two bony parts of the maxilla have so approximated that the original cleft appears only as a narrow dark area. These deformities appear more marked when the operation has been performed at an early age, as the bone is then more easily moulded than in later life. Another contributing factor to these deformities is the apparent lack of growth of the maxilla as a whole after surgical interference, which accentuates the condition as the mandible develops. Orthodontic treatment is often resorted to to expand the arch after these operations, but is usually not attended with satisfactory results, and it is open to doubt whether the extensive movement of the teeth that is required does not lead to their premature loss.

Preliminary Measures, including Operation for Hare-Lip.

The ideals to be aimed at in the successful treatment of these cases are: (1) The general health of the patient; (2) good speech; (3) proper mastication; and (4) good appearance. The technique to enable us to reach these ideals as far as possible is as follows. To enable the infant to take its food it should be provided at birth with a small sucking plate, which is of simple construction and can be made in one day. It will not always enable the infant to feed at the breast, depending largely upon the amount of milk present, but it will certainly enable the infant to suck from a bottle and feed like any normal child. This plate is only worn whilst the child is feeding, and may be continued without alteration until between the second and third months, at which time a hare-lip operation should be performed if necessary. The reasons for operating at this age are: (*a*) The child having been naturally fed for this period is better fitted to undergo the operation; (*b*) owing to the action of sucking, the two parts of the maxilla will have appreciably approximated, as may be demonstrated by a comparison of models of the mouth taken at birth and at this period; and this fact, together with the increased supply of soft tissues, renders the operation easier; (*c*) if the operation is postponed after the third month the child has a tendency to push its thumb into the cleft with resultant widening.

In cases of double cleft with a protruding pre-maxilla, it is essential for the future appearance of the child that the pre-maxilla should be replaced in its natural position between the two parts of the maxilla whilst the lip operation is being performed. After the hare-lip operation, the original sucking plate must be reconstructed or, preferably, a new one made, to conform with the altered conditions. This plate will carry the child on until the teeth begin to erupt, at which time the infant accommodates itself to the condition and will be able to feed without its assistance.

From the third month to the third year no special treatment is required, beyond special attention to the conservative treatment of the teeth. The dental arch not having been interfered with, the temporary teeth will erupt in good occlusion with the lowers except those involved in the actual cleft, which may erupt somewhat irregularly but call for no drastic treatment. The child will be able to feed quite normally, although the usual difficulty when starting with solid food may be slightly prolonged. This, however, is an entirely temporary trouble which is soon overcome and calls for no anxiety.

Definitive Measures Three Years after Birth or Later.

When the child reaches the age of 3 years there are three courses of treatment open, viz.: (1) Surgical, (2) prosthetic, and (3) surgical and prosthetic.

1. *Surgical.*—If it is desired to treat the case by purely surgical means the Langenbeck operation may be performed, but the hard palate should be closed first and followed later by the closure of the soft palate, as this course helps to lessen the pulling forward of the soft palate alluded to above. In theory this operation should give good results, but it must be realised that the soft palate is such a delicate organ that when part of it is lost by surgical interference it cannot be replaced by any means yet known to plastic surgery. If the operation is not entirely successful at the first attempt the resultant condition is far more difficult to treat, either by surgical or prosthetic means, than if the operation had not been performed. It is this great risk and the deplorable results that so often follow that preclude recommendation of this treatment, and compel us to seek a safer and more efficient treatment in which the risk is entirely eliminated.

2. *Prosthetic.*—The prosthetic line of treatment consists of the fitting of an obturator to restore the hard and soft palates. This treatment is commenced during the fourth year, and naturally the apparatus has to be renewed from time to time, depending largely upon the eruption of the teeth. The points in favour of this treatment are: (*a*) No operation having been performed upon the maxilla, except for the hare-lip, the dental arch develops like that of a normal child, with the result that the occlusion of the teeth is practically normal except in the immediate neighbourhood of the cleft in the alveolus; (*b*) as the result of the normal development of the maxilla unhindered by operation, the usual cleft palate disfigurement is avoided and the appearance of the child is not affected; (*c*) when the soft palate is not interfered with Nature endeavours to accommodate it to the condition; the two separate halves hypertrophy, together with the muscles of the posterior wall of the pharynx, and so facilitate the fitting of a really functional obturator. It has often been stated that if children are not operated upon or some appliance fitted at an early age they will develop bad speech and that this habit is very difficult to cure. This is a fallacy. Experience of about 300 cases has proved to me that the quickest and some of the best results in speech are obtained when the patient comes for treatment between the ages of 12 and 18, without any previous surgical or prosthetic treatment. The prosthetic treatment fulfils all the ideals mentioned above, good speech especially being almost a certainty. The only disadvantage of this treatment is that the patient has to keep in touch with a dental surgeon experienced in the construction of obturators.

3. *Surgical and Prosthetic.*—This combined treatment has for its purpose the closing of the soft palate by surgical means and of the hard palate by a dental plate.[1] The primary importance in speech of a functional soft palate is the basis of the treatment, and this is secured by utilising all the available soft tissue in its construction, thus leaving the cleft in the hard palate to be closed by means of a dental plate. This plate is of simple construction, and is similar to the ordinary denture which in a large number of cases is necessary to replace the involved incisor teeth, these being often irregular and requiring extraction. The advantageous features of this treatment are: (*a*) A long soft palate which reaches the posterior wall of the pharynx when elevated, resulting in good speech. Any tendency of the palate to move forward is obviated by the dental plate, which is carried slightly into the cleft. (*b*) A normal dental arch which has not been distorted by surgical interference, eliminating facial disfigurement and giving good occlusion of the teeth with normal masticatory function.

The best results from this treatment accrue when the operation is not undertaken until the child is 6 to 8 years old, and this postponement calls for patience on the part of the parents. It is often advisable to insert a small obturator after the age of 4 years to accustom the child to the wearing of a plate, to aid speech, and to give the parents the necessary assurance. In performing the operation special attention must be paid to the insertion of a dental plate at the same time, otherwise the soft palate will tend to be drawn forward and the most important feature of the operation missed.

Conclusion.

It must be borne in mind that if the early operation is not completely successful future treatment is far more difficult, and necessitates the use of more complicated appliances, than if the operation had not been performed in early infancy. It seems, therefore, desirable that the safer prosthetic, or the combined surgical and prosthetic courses, should be adopted.

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[1] See Gillies and Fry, Brit. Med. Jour., March 5th, 1921.

ERITH AND DISTRICT NEW HOSPITAL.—The new hospital for Erith, Crayford, Belvedere, and Abbey Wood was opened by the Prince of Wales on Nov. 19th. The old hospital, which was built 50 years ago to meet the needs of a small riverside hamlet, contained only 12 beds, but as the needs of the district grew the arrangements of the institution became inadequate. In 1922, therefore, a new building scheme was proposed. A site at the top of Park-crescent was presented by Mr. G. H. Gunning, a small piece of adjoining land was purchased for £228, and a fund was started to build a new hospital at a cost of some £15,000. This hospital, which is now open, has 21 beds and is built on the most approved modern lines, including an operating theatre.

Special Articles.

SURGICAL BOOTS.

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THE ordering of surgical boots is not infrequently considered by the general practitioner to be the exclusive privilege of the orthopædic surgeon or of the so-called surgical bootmaker. This abdication of one of the realms of treatment is unnecessary in many cases, and in the latter instance may result in much harm to the patient. Practitioners risk the loss of both prestige and patient by sending a case of foot deformity to a surgical bootmaker for treatment. To us this is a confession of weakness. We consider that every practitioner should be able to order an ordinary surgical boot with knowledge of the therapeutic requirements, and of the effect likely to be produced.

There are many essential practical details of the actual making of a surgical boot which must necessarily be left to the skill and experience of the surgical bootmaker. The type of boot, however, should always be prescribed by the medical attendant, and whenever possible with the bootmaker present. We have come into close contact with many surgical bootmakers, and it is rare in our experience to find one who could be depended upon to supply a completely satisfactory surgical boot on his own initiative. The practice of patients going indiscriminately to surgical bootmakers is one to be strongly condemned. The majority of conscientious bootmakers would, we consider, greatly prefer a surgical prescription into which they could put all the skill and knowledge at their command. To be able to order surgical boots satisfactorily presupposes some orthopædic knowledge, but it is a comparatively simple matter, and in its main principles not difficult to comprehend.

This article is an attempt to formulate some definite principles to be followed in the ordering of surgical boots; also to submit a nomenclature which would enable a practitioner to write a prescription which should be easily understood and followed by a surgical bootmaker. These principles are the result of a considerable personal experience; but it must be remembered that this is notoriously a realm of treatment where differences of opinion are often acute and sharply defined.

In ordering surgical boots a primary consideration to be borne in mind is that of the patient's comfort; surgical boots must be comfortable or it is impossible to obtain any therapeutic advantage from them. As well as being comfortable, surgical boots must be efficient to correct the deformity, and fulfil the conditions required; we may often have the first without the second factor. A patient should never have to "break in" a pair of surgical boots, and although the full advantage of surgical alterations may not be realised for several months, these should never be so designed as to make too violent an immediate change in the attitude of the foot. Very often it is essential to accommodate our ideas of what is surgically necessary to what the patient can bear, and to hasten slowly.

Every prescription for surgical boots must be, in our opinion, to some extent a considered experiment, and we should be able to alter it as we would any other prescription, although not perhaps with the same degree of freedom. Patients should not be simply ordered surgical boots, and then seen again in 6 or 12 months' time. The patient should be seen as soon as possible after delivery of the boots, and again in about a month's time, when an examination of the feet and the boots will reveal whether comfort and efficiency are being obtained. With boots more than with anything else it is never wise to ignore the patient's feelings; if he is reasonably intelligent his remarks on the comfort or otherwise of his boots are well worth paying attention to. The sole of a worn boot will often yield much information to the observant eye.

The actual measuring for surgical boots by the bootmaker should be done whenever possible in the presence of the surgeon. Careful examination of the foot should be made, the type of surgical alteration to the boot decided upon, and then the measurement should be taken in a thick pair of socks or stockings. If the surgical boot is of a complicated character a fitting of the boot in an unfinished state should be made whenever this can be arranged—at this stage alterations can easily be made. In gross deformities a cast of the foot may be a necessary preliminary. For patients who cannot afford the expense of a hand-made surgical boot, surgical alterations of various kinds can be adapted to a strong machine-sewn boot, and this has often to be done.

The human foot, although in many ways a complicated structure, is in its essential mechanism a straightforward problem. The diagnosis of foot disorders of a bony or arthritic nature is always controllable by X ray examinations.

Ill-effects of Faulty Boots.

The modern system of encasing feet in stout leather boots with a comparatively narrow fore-part, ill-adapted to the shape of the foot, is the cause of much unnecessary suffering. Probably this and the wearing of badly fitting socks, &c., have been directly responsible for the greater number of the painful deformed feet seen. The narrow fore-part of ordinary boots, by squeezing the toes together, allows no freedom of movement, and in this way an atrophy of the small muscles of the foot is produced which leads to various deformities. Faulty footwear we consider is mainly responsible for such disabilities as hallux valgus, hallux rigidus, hammer-toes, claw-foot, various types of the so-called flat-foot, and metatarsalgia. This may seem to be a long list, but we have no reason to think that it is in any degree exaggerated.

It does not include such minor but painful conditions as bunions, corns, callosities, &c., and it must be remembered that several of these conditions may coexist in the same foot. For example, hallux valgus and rigidus are very frequently associated with some degree of flat-foot.

The Choice of a Boot.

The present-day orthopædic conception of a suitable man's boot is one which fits firmly round the heel, ankle, and instep, but gives the fore-part of the foot plenty of room. The boot should also be broad at the toes with a straight inner border, and the upper should be well raised to avoid pressure on the toes.

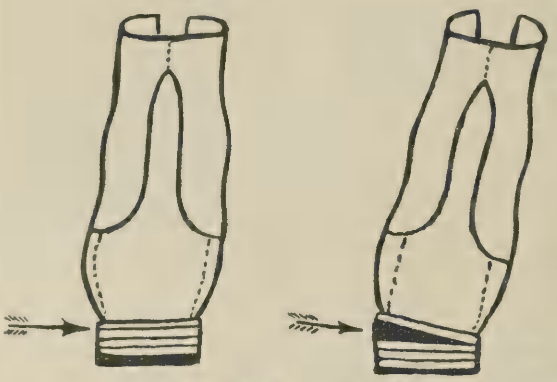
A point often neglected in choosing boots is the length. In walking and weight-bearing there is a forward thrust of the foot and toes which must have room for its accommodation. In boots made to measure the length is usually at least two sizes longer than the bare actual measurement. A short boot is a fatal mistake.

The Human Foot.

To simplify our mental picture of the human foot it is an easy matter to make a rough division of the bones of the foot into an anterior and a posterior portion; the posterior or hinder part of the foot consisting of the os calcis and astragalus, and the front part consisting of the remainder of the foot. The posterior portion of the foot is the firm support for the body-weight, and therefore requires to be well stabilised in the boot; it is not subject to many deformities or disabilities. The anterior portion of the foot is the mobile portion of the foot and comes into play in all active movements, games, &c., where lightness and quickness of movement are essential. Owing to this mobility it is necessarily subject to many stresses and strains. The ill-effects of these may necessitate the surgeon's interference, either operative or by the provision of surgical boots, or both.

From the foregoing it can be seen that surgical boots should fit firmly round the ankle and give stability to the posterior portion of the foot. They should also be so designed as to give as much freedom of movement as possible to the anterior portion.

FIG. 1.



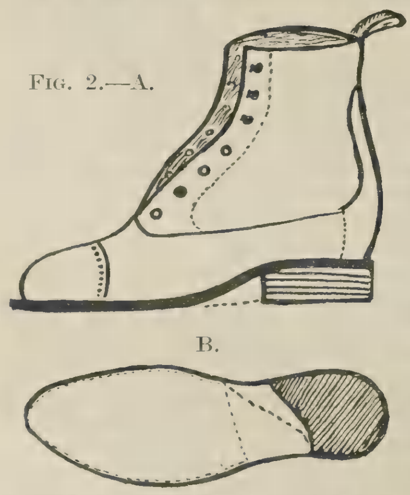
Heel wedge. Showing method of insertion.

Surgical Boots—Palliative and Remedial.

Surgical boots fall primarily into two large divisions. First, those designed to fit fixed deformities for the purpose of appearance, comfort, and relief of pain. Second, those designed with therapeutic purpose to combine comfort with an attempt at the correction of a non-fixed deformity, or to prevent the increase of a deformity if correction is impossible.

The first group may be called palliative only, and the second remedial or corrective. Under the first heading come the boots ordered for amputation of whole or part of the foot, rigid inversion or eversion, shortness of leg due to fracture with faulty union, and other permanent deformities, &c. Under the second come the cases where boots are ordered for temporary or remediable deformities due to paralysis or paresis, &c., which will improve under treatment.

FIG. 2.—A.

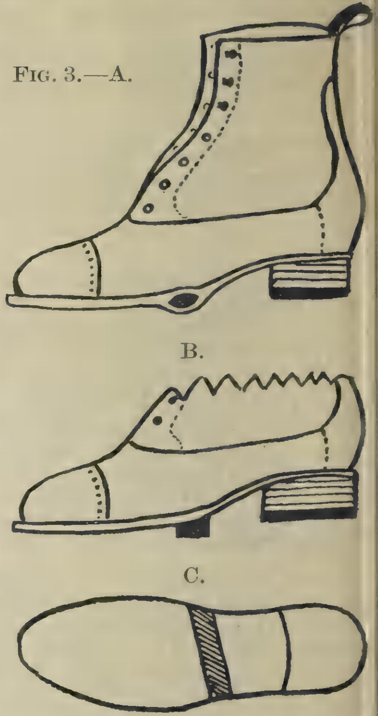


Oblique or crooked heel. (Dotted lines show position of continuous or "Thomas" heel.)

Surgical boots are hand-made, and necessarily require to be of first-class workmanship, hence their extra expense. Uppers should be of the best box calf or glacé kid; the lining may be either of leather, drill, or linen, as best befits the type of boot. Leather lining is inadvisable for cases of "hot" feet, as the excessive perspiration inevitably rots the leather more quickly than it would drill or linen. The occupation of the individual patient should be borne in mind when ordering the boots. The sole leather should be the best oak-tanned.

A boot consists of the upper with its lining, the toe-cap, the welt, the insole, the sole, the heel, and the tongue. In making the boot, the stiffener, a piece of thin but firm leather, is sewn between the upper leather and its lining; this goes round the heel as high as the seam and as far forward as the front of the heel. In surgical boots it is sometimes found necessary to prolong the stiffener on one or other side as far as the tread, or it may be produced upwards to grip the ankle. The factors which go to the making of a surgical boot, the measuring, the fitting of the special last, the cutting of patterns and linings, the closing of uppers, and the finishing of the boot, allow much scope for mistakes, as each process is technical and requires special skill and experience.

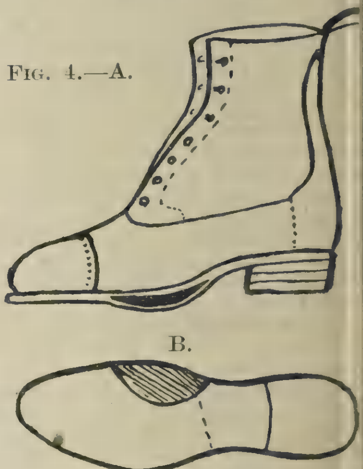
FIG. 3.—A.



Metatarsal bars. Showing position and two methods of fixing.

In serious abnormalities and deformities it may be necessary to take sketches of the foot in various positions or even to take a plaster cast. The surgical boot is necessarily built upon a special last.

FIG. 4.—A.



Sole patch or wedge.

Conditions Requiring Use of Surgical Boots.

Surgical boots or surgical alterations to a patient's own boots may be required for one or more of the following conditions:—

1. Shortness of leg.
2. Amputation of foot, Syme's or partial.
3. Amputation of toes.
4. Pott's fracture with eversion deformity of foot.
5. Fracture deformity of the foot itself.
6. Strains of the foot resulting in impairment of the inne longitudinal arch, different types of the condition classified as flat-foot.
7. Claw-foot or pes cavus.
8. Severe hammer-toes.
9. Hallux valgus and rigidus.
10. Metatarsalgia associated with partial loss of th transverse arch of the foot.
11. Painful conditions in the neighbourhood of the heel
12. Various forms of drop-foot.
13. Deformities associated with paralysis.
14. Congenital deformities.

The Prescription of Surgical Boots.

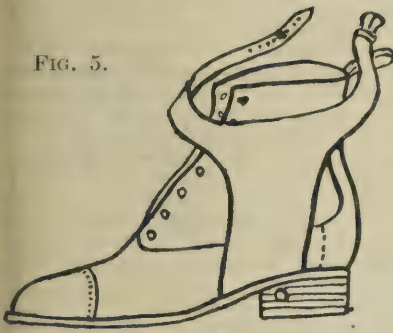
At this stage we will enumerate briefly the various special terms used in ordering surgical boots, and the disabilities to which they are applicable. The disabilities themselves will be dealt with separately and at greater length.

1. *Crooked heel* (Fig. 1).—"The heel of the boot is made ¼ inch higher on the inner side, tapering gradually to the outer side, so that the inner side of the heel is ⅓ inch higher than the outer. In addition the length of the heel should be extended forwards by about ¾ inch on the inner side." (This heel sometimes goes by the name of oblique heel.) This is the description given by Sir Robert Jones, but it is not always understood by surgical bootmakers that a crooked heel is a wedged heel, and it may be necessary to explain the term.

2. *Thomas or continuous heel* (Fig. 2) is similar to the former, but the extension is carried as far forward as the tread; this is not often found to be necessary.

3. *Metatarsal bar* (Fig. 3) is a bar of leather about ⅓ inch in thickness and 1 inch broad attached to the boot sole on its outer surface. The type most commonly found suitable is called a concealed metatarsal bar, and is incorporated between the sole and the insole. It lies obliquely across the sole of the boot from within, outwards and backwards, parallel to and immediately behind the heads of the metatarsals. By means of this bar the body-weight is directed more on to the necks of the metatarsals than on to their heads.

FIG. 5.

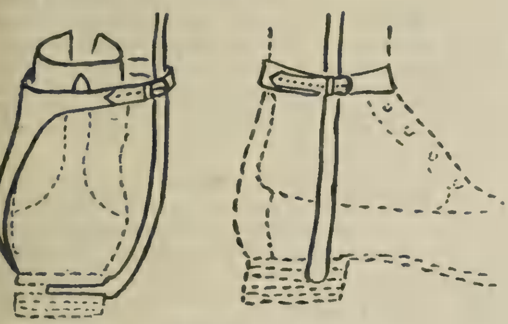


T-strap.

4. *Wedged sole* (Fig. 4) is a wedge-shaped piece of leather ¼-⅓ inch thick at base of the wedge, incorporated in the sole, usually on the inner side.

5. *Turned up or raised insole.*—This is a surgical alteration in which the insole is so cut that when sewn into the boot a part of it turns up to support the inner longitudinal arch of the foot, and is incorporated in the upper. In our opinion this is preferable to all the forms of metal support, &c. which are sold in such large numbers.

FIG. 6.



Surgical iron and T-strap.

6. *T-straps* (Figs. 5 and 6).—These are only of use with surgical irons, the inside T-strap with the outside iron, and vice versa. A T-strap consists of a piece of leather cut in the shape of a T, the vertical part being broad, some 2½ inches wide, and long enough to reach from the top of the boot heel to the malleolus, while the cross piece ends in a strap and buckle to fasten round the iron as a point of support. The purpose of this is to exert pressure on one or other malleolus to correct eversion or inversion as the case may be. Thus an *everted foot* requires an *outside iron and inside T-strap*, and vice versa.

7. *Cork insole* is the name given to the cork which is placed inside the boot to provide the amount of raising necessary to overcome the shortening of the leg.

8. *Cork forepart* is the cork used to fill the toe of the boot where the toes have been amputated, or in partial amputation of the foot.

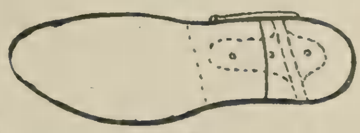
9. *Heel sockets.*—A properly constructed socket for the reception of the lower end of a surgical iron consists of a metal plate built into the heel and waist of the boot, to the under surface of which is welded the metal tube, which may be round or flat. If the former, it is called a *circular tube*, if the latter a *box socket* (Fig. 7).

10. *Sponge rubber*, which is made in sheets ½ inch thick, has recently come much into favour for the facing of a cork insole or a cork forepart, especially where the foot is tender and painful. Sponge rubber soles, half soles, or heels inside the boot may be ordered to give relief to tender feet.

11. *Metatarsal sock or pad.*—This is the name given to a leather insole made with a slight projection to fit the hollow of the foot behind the heads of the metatarsals. It brings pressure to bear at this point chiefly on the second, third, fourth metatarsals, and so tends to rest and support the anterior or transverse arch.

Generally speaking, when ordering surgical boots the quality of the leather should be stated, whether willow calf, box calf, glacé kid, &c.; also whether toe-caps are to be added, and whether the lacing should be to the toe-cap or to the toe; whether extra stiffening is required, or whether some ordinarily present round the heel should be left out. Other points include the question of the uppers, whether extra height is required; wedging of the sole or heel or both, and the height of the wedge; the placing of sockets in the heel for the reception of irons or caliper; the addition of a T-strap; crooking of the heel, usually in association with wedging; the addition of metatarsal bars; the raising of the heel or both heel and sole by means of (1) outside cork, (2) inside cork; incorporation of steel plate in the sole.

FIG. 7.



Box-socket.

In the subsequent article there will be considered the serious complication of shortening of the leg, as well as flat-foot, metatarsalgia, and other circumstances requiring surgical boots, constituting a general application of the principles here suggested.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

X Ray Treatment of Inoperable Tumours.

AT one of the recent meetings of the Vienna Medical Society two very instructive cases were shown where X ray treatment resulted in an unexpected improvement. In the first instance, Dr. Lenk showed a 11 year old girl, who had been operated on four years ago for a small spindle-celled sarcoma of the soft tissues of the trunk, attacking the bones. After an X ray treatment of six weeks she seemed "cured." Six months later a metastatic growth in the scar was again removed by X rays. In 1923 she returned in a most deplorable condition; she was cyanotic, dyspnœic, and had hæmoptysis. An X ray plate showed the lungs filled with small nodules. Under protracted radiation at long intervals she rallied, and the X ray plate now shows only a network of dark lines, where the multiple nodules had been situated (fibrous degeneration?). The girl is at present practically cured. The second case, shown by Prof. Schlesinger, was a woman who had been suffering for 12 months from symptoms of a tumour of the brain; vertigo, severe headache, vomiting, papillœdema. Multiple paralysis of the cranial nerves of a degree rarely observed soon appeared; all the nerves from the second to the twelfth on the left side were affected, while on the right side the third, the motor part of the fifth and the sixth were involved. The Wassermann was negative; antiluetic treatment was useless. Cerebral tumour was diagnosed, and as it seemed inoperable, X ray treatment was instituted. The effect was immediate; nearly all symptoms disappeared within three months, and the patient can now eat, masticate, walk, and move her eyes. The vomiting disappeared. In the discussion following the two demonstrations it was pointed out that quite a number of cases have already been recorded in which X rays were extremely effective in improving inoperable cases of tumours. Eiselsberg has reported seven cases and Szallitzer three cases, in which patients otherwise doomed to rapid death were saved. Redlich and Marburg have also seen such results, but they pointed out that it was not justifiable to speak of a cure. Both have seen cases improve, but they happened also to be present at the post mortem of patients, and in all cases the tumour was found to exist in the brain or medulla or hypophysis. Every operable case should be operated on as thoroughly as possible and afterwards subjected to radiation. Schwarz laid stress on the fact that the histological structure of the tumour was responsible for the outcome of the treatment. Gliomata were most subject to retrogressive changes under this kind of treatment.

Disastrous Diphtheria Prophylaxis.

Considerable public feeling was aroused recently in Vienna when it became known that a few weeks ago seven children, inmates of a children's hospital near Vienna, had died after receiving a prophylactic injection of anti-diphtheritic serum. The fact was at first kept secret, and it was only by accident that it leaked out. The public were seriously and justly annoyed at the attitude of the authorities, and the press did not abstain from calling this procedure by a hard name. The actual occurrence was as follows: A child, under treatment for some other ailment, contracted diphtheria and received its dose of antitoxin; seven other children, inmates of the same ward, were at once "immunised" by the usual method now used in many countries of injecting toxin-antitoxin. The result, however, was that all seven died, the chief symptoms being those of heart failure. The toxin-antitoxin mixture had been obtained from the Vienna Serological Institute, a former State institute, which has recently become a commercial undertaking. The ampoules of the mixture, as formerly issued by the State institute, were guaranteed as efficacious for a short period only, after which they could be exchanged free of charge, but the toxin-antitoxin as now issued by this institute was supposed to remain in good condition for two years. It is fairly certain that the original product had been tested when sent out, but it is well known that the antitoxin is liable to disintegrate much more quickly than the toxin, and so the unfortunate babies received actually a full dose of toxin, with rapidly fatal results. Inquiry showed that the medical staff of the hospital followed strictly the instructions on the ampoules, the correctness of which they had no reason to question.

A Dentists' Exhibition.

The union of the Vienna dentists intends to arrange an international meeting of dentists (medical men and mechano-dentists) in May, 1925, a prominent feature of which is to be an exhibition of all methods, apparatus, and appliances pertaining to operative and conservative dentistry. A large collection of specimens, wax models, and diagrams of diseases of the teeth is available. A special department will be devoted to the history of dentistry. The ancient methods of dealing with diseases and disorders of the teeth as revealed in Egyptian, Greek, and Roman findings and literature, will be shown either by means of original specimens or in good reproductions. The public will not be troubled with advertising elements, as the entire exhibits will appear as the result of coöperative work of the scientific union of dental mechanics.

Fatal Injuries at Football.

Within the last year several cases of severe collisions between football players have occurred in Vienna, of which one, occurring a few weeks ago, proved fatal. The young player had been accidentally kicked in his left side, collapsed, and was brought to the accident ward. A rupture of the spleen and fracture of several ribs was found, and in spite of an operation he died a fortnight later. Dr. Heslinger, from the Eiselsberg Clinic, recently reported on two other cases of severe injuries sustained by footballers as a result of such accidents, occurring within six months of each other. In both cases the victims were kicked in the abdomen and collapsed. In the hospital both patients were found to have sustained ruptures of the kidney, necessitating nephrectomy.

Death of Dr. Gersung.

One of the pioneers of surgery in Austria, Dr. Gersung, passed away recently at the age of 81 years. Although he was never on the teaching staff of the University, he succeeded in building up a world-wide reputation as a surgeon, and his methods of plastic operations and the cosmetic injections of paraffin, which he was the first to use, showed him to be an original thinker. He was an intimate friend of Billroth, and with his aid he organised the "Rudolf Stiftung," a special surgical hospital, which was the first on the continent to pay special attention to the training of nurses. Gersung's chief work lay in the improvement of methods of abdominal and limb surgery.

BUCHAREST.

(From our own Correspondent.)

Accidents with Salvarsan Preparations.

At the Interhospital Association meeting in Jassy held recently, Dr. Stefanescu discussed the causes, prevention, and treatment of immediate, early, and delayed undesired reactions to intensive arsenical treatment of syphilis. He emphasised that the cause might lie in the toxicity of the drug, the method of application, or the intolerance of the subject, or in all three combined. Treatment should be guided by the previous condition, the reactions to previous injections, by whether the disease was recent, was fully active, and whether there was any indication of a reaction on the part of the nervous system or viscera. The urine should be examined before every injection, and special caution was necessary if it contained bile pigments, albumin, or much sediment. The injection should always be made extremely slowly, watching for the least untoward sign. The physician should keep a full record of these cases, and a solution of epinephrin should always be at hand to combat any signs of intolerance, as advised by French syphilologists.

Hygiene of the Roumanian Railways.

At a recent meeting of the Sanitary Board of the State railways the executive officer was instructed to draw up certain rules and regulations regarding car sanitation, these to be considered in conference with various railway officials and reported on at the next regular meeting of the board. In carrying out the inquiry, four points were emphasised by the Sanitary Board—namely, sufficient amount of fresh air properly distributed, cleanliness of the car, including water closets, the proper heating of the car, and overcrowding. The Board also inquired whether the foregoing points had received sufficient consideration from the private companies owning railways in Roumania and the question was asked whether the Board should undertake to secure better sanitary conditions by formulating certain regulations. Circular letters have been sent out to a number of leading medical men and the character of the replies will influence the Board in its decision.

Prevention of Malaria in Albania and Montenegro.

A Bucharest medical journal reported recently on the sale and distribution of quinine in Albania and Montenegro as a prophylactic against malaria fever The chief medical superintendent in Albania accept the principle that quinine should not be distributed a public expense save in charitable dispensaries unless this measure is necessary to combat a severe epidemic of malaria. From past experience it is calculated that every 100,000 persons would require from 75–100 kg. (165–220 lb.) in such an emergency. As regards the distributing agency, he desires the hearty coöperation of every official, but for systematic distribution during a severe epidemic a non-official agency must necessarily be utilised, and in this matter the district boards are primarily responsible. Instructions are given for carrying out this systematic distribution of quinine. It is considered that, except in the case of a severe epidemic, the best method of making quinine readily acceptable is by the extension of the money-unit packet system.

Effect of Salt and Sugar on Diuresis.

Dr. Sadengeanu has repeated the experiments which were first made by Brunn in Germany for ascertaining the effect of common salt on diuresis. He remarks in an article in one of the Roumanian medical journals that with greater knowledge and better appreciation of factors outside the kidneys, which bear on secretion of urine, the problem of diuresis has become not only more complicated, but has also increased in importance both from the physiological and the pathological standpoint. As the result of his experiments he thinks we must modify our views in regard to the effect on diuresis of sodium chloride. His experimental subjects were given, in bed, one litre of water at 8 A.M. The urine was collected every half-hour until 12 o'clock, measured, tested for specific gravity, and the total amount of sodium chloride secreted during the four-hour period was determined. When one litre of tap water was given, more than the amount of fluid ingested was secreted in three hours. When distilled water was substituted, diuresis was not only not checked, but seemed rather more rapid. When 3 g. of sodium chloride were added, not quite the whole amount of fluid ingested was secreted in four hours. With 6 g. added, not more than eight-tenths of the fluid intake was secreted within the urine. With from 9–12 g. added, only 50 per cent. of the fluid ingested was secreted within four hours; with 24 g. only 33 per cent. In spite of the greatly increased sodium intake, the amount of sodium chloride secreted in the urine in the four-hour period was never much increased and was often decreased. With the addition of 12, 18, and 24 g. of sodium bicarbonate, diuresis was checked in much the same manner as by sodium chloride. The addition of sugar to water always caused an increase of diuresis; 100 g. of sugar to 1 litre of water produced 1660 c.cm. of urine in four hours.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

A University Sanatorium.

ON Oct. 1st, 1922, a Swiss University Sanatorium (Sanatorium Universitaire) was opened at Leysin. The director and founder of this institution is Dr. Vauthier, who has advocated the idea for some years. In his first report covering the period from the opening till the end of 1923, he states that 46 students and professors have benefited by this institution. As far as is possible all the patients are engaged in some definite intellectual work, and Dr. Vauthier is well satisfied that such work at regular hours and in individually regulated amounts has never been unfavourable to any of the patients. On the contrary, it was found to have both a sedative and tonic action in giving the patients a saner and more balanced outlook and preserving them from the demoralisation of unemployment. The sanatorium has a good library of 2000 volumes, and in addition the patients have free access to the general library of Leysin which has 15,000 volumes. The sanatorium is regularly visited by professors of the different Swiss Universities, who usually make a stay of some days. During these visits they give lectures, and in private conversations they encourage the work of the sick students. With such resources the students of pure science, theology, law, and economy can make progress in their work. Students of applied sciences find enough theoretical work to keep them busy during 6 to 12 months. Medical students take the opportunity of studying tuberculosis, its diagnosis and treatment. They follow the courses of Dr. Rollier and his collaborators. Dr. Vauthier mentions that three of his patients have finished their theses, five are engaged in preparing theses, three have passed examinations after preliminary work in the sanatorium, and two have produced some special scientific work.

State Campaign against Tuberculosis.

The Bundesrat has lately demanded even wider financial credit for the needs of tuberculosis institutions and sanatoriums, although hitherto the astonishingly large expenditure of eight million Swiss francs (£320,000) per annum on these institutions has been covered by State loans. The following are the institutions, sanatoriums, and care centres which are subsidised by the State: 67 associations, leagues, and centres distribute yearly about one and a half million francs (£60,000) in anti-tuberculosis work. There are also 30 sanatoriums and preventive centres for adults, 21 sanatoriums and preventive centres for children, together with open-air schools, 55 pavilions and tuberculosis wards, including private children's hospitals. In connexion with these there has been opened, in the last few years, in addition to the University Sanatorium in Leysin, an institute for the study of tuberculosis and of physiology in high altitudes in Davos. This institute was founded by cantonal and local subscriptions, along with funds from various scientific societies and private generosity. Mention must also be made of the various care and help centres of the League for the Campaign against Tuberculosis in various cantons. These undertake to provide beds, clothing, provisions, and nursing equipment as well as money. This League also supports centres for advice and free medical inspection in a similar fashion to the welfare centres in England. The State proposes also in the next few years to further extend the subsidised "holiday colonies." This type of institution has been of great service, and statistics show that the children who spend their holidays in these colonies in the mountains require no medical attention for the next few years, and their powers of resisting infectious diseases are much increased. Another new institution is the Swiss Army Sanatorium at Novaggio, near Lugano, 644 metres above sea-level. This sanatorium is intended for convalescent tuberculous soldiers, no active tuberculosis being admitted. The sanatorium has 100 beds. The treatment consists in graduated regular work, chiefly agricultural. To the sanatorium are attached extensive farming grounds.

Criminal Abortion.

The question of criminal abortion is one which has been frequently discussed both amongst the profession and the public. In 1919, in the cantonal council of Basle, a Socialist amendment which demanded the abolition of punishment of criminal abortion was rejected by a small majority. The Swiss medical profession maintains in the majority that the unborn child must be protected by law. In one of its recent sessions the Medical Association of Zurich dealt at length with the subject. Two resolutions were passed. 1. Any practitioner who decides to induce artificial abortion is required to call in a colleague for consultation. The result of the consultation must be put down extensively in writing and such documents must be preserved by both practitioners for at least ten years. If for some reasons a second consultation is found necessary the statements made at the first consultation must be handed on to the second consultant. 2. In cases where medico-social or eugenic reasons play a part or when special difficulties arise it is recommended to consult a State-appointed health officer. In such cases the family or personal conditions of the mother ought to be thoroughly examined—e.g., by inquiry from the Poor-law authorities.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Paris Street Accidents.

WE who are used to the almost unchecked celerity of the French motorist even in the heart of Paris find the pace of the London taxi reminiscent of a slow-down cinema show, yet we have comparatively few accidents. Mr. Morain, Prefect of Police, has just come back from London, where he has been studying traffic problems, and where he has collected a tale of accidents that makes our flesh creep. He was told that during July, August, and September the London police had to attend to 22,351 street accidents, 196 of which were fatal. Paris, he says, does not produce such a list in a whole year. He admits, however, that Paris is susceptible of improvement in the matter of regulating its traffic, and he hopes shortly to introduce certain reforms such as removing railings where they are more obstructive than helpful, discouraging to the point of ultimate suppression the horse-drawn vehicle and hand-cart, providing better facilities for parking cars, improving the system of signalling to guide the traffic in the most congested areas, building subterranean and overhead passages, and discarding as far as possible the little sentry-box edifices which punctuate the open spaces of Paris with generous profusion. Doubtless these reforms will reduce our already low street accident rate, but we are still left wondering why our taxi rates and accident rates do not run parallel. Is it that the high speed of the Paris motor frightens the pedestrian off the middle of the street, making him take refuge on the inner half of the trottoir where a table and chair await him, or do the laws applying to street accidents discourage him from incurring them ? For the Parisian knows well that if he is run over in the middle of the street by a car he will be prosecuted for obstructing the traffic.

Thermal Cures for Poor Children.

Dr. Sersiron, of La Bourboule, pointed out at the recent congress of pædiatrists the value of the French thermal stations for the treatment of poor children, and in particular the stations of Auvergne. On his recommendation the congress supported the proposal to institute pavilions in some of the French stations, aided by private enterprise and public funds, with the object of securing for poor French and Belgian children such hydro-mineral treatment as might be required.

"Cancer Cures."

The Minister of Hygiene has recently lodged a complaint against certain medical institutes which promise by means of posters or advertisements the cure of cancer without operation. The Minister, who is President of the Franco-Anglo-American League against Cancer, is supported in his decision by the expressed opinion of the national and international congress of medical men, which is that the only chance of a cure in cancer is treatment at the outset either by surgical means, by excision, or by radium. He thinks that such advertisements which advocate medical treatment are dangerous in preventing early stages of cancer from obtaining adequate treatment. This measure has raised protestations in certain medical circles where it was thought that the doctor should remain free to look after his patients as he chooses, and according to his experience and his conscience. Such people also consider that there is no reason to limit initiative.

Preservation of Oysters by Super-Aeration.

In 1913 Dr. Gineste, of Bordeaux, proposed the super-aeration of oysters in order to purify them and preserve them, and recently Dr. Barbary, of Nice, Departmental Inspector of Hygiene, demonstrated to the Academy of Medicine the results of some experiments conducted under the Ministry of Hygiene. The experiments showed that super-aerated sea-water in specially constructed ponds was a medium in which healthy oysters could live free from all contamination and which, in addition, was a guarantee for the purity of the shell-fish. Dr. Barbary carried his experiments further and studied the action which super-aeration might have on pathological organisms existing in the molluscs. The oysters were sprinkled several times a day with water which contained more than 20,000 coli bacilli per litre and then they were transferred to the super-aeration ponds. The oysters got rid of the coli bacilli within six days when examined bacteriologically. It can therefore be concluded that oysters which have been contaminated by unclean water are mechanically cleaned and purified from pathogenic organisms at the end of six days. It is not a question of the destruction of the pathogenic organisms, but of their progressive removal by the mechanical effect of the aeration.

Doctors in Attendance at Theatre Performances.

There is a police decree, dating from 1908, according to which places of entertainment, catering for more than 800 persons at a time, must have a doctor in attendance. This decree has recently been challenged by theatre managers who have been wondering a little petulantly why such a precaution should be thrust on them, while it is not compulsory for train services and other undertakings which bring crowds together. The theatre managers' suggestion that doctors are superfluous on these occasions has been countered by the doctors themselves, who point out that in 1921 alone there were as many as 227 instances when the services of the doctor in attendance were required. These differences of opinion have recently been reviewed by the municipal authorities who are inclined to side with the theatre managers up to a certain point. It is suggested that instead of there being always a doctor on the spot, theatre managers should make arrangements with one or more doctors in the neighbourhood who would be prepared to come at once if summoned. In the case of evening performances there is already the excellent medical night service, an account of which has recently been given in THE LANCET. This service should, it is maintained, be sufficient to render the attendance of a doctor at every large theatre superfluous. The municipal authorities are also considering the advisability of theatres providing a first-aid outfit in the theatre premises.

A Ban on the Newspaper as a Food Wrapper.

Something of a flutter has recently been provoked in the Halles of Paris by the revival, from Oct. 1st of this year, of a decree dating back to 1912. This decree forbids the use of printed paper as a wrapping for the fruit and vegetables reaching the Halles. In a recent interview with the *Matin*, Mr. Montfort, President of the "Syndicat des Mandataires," has attempted to defend the use of the unsold newspaper as a wrapper for articles of food which must be cooked before it is eaten. This printed paper costs only from 30 to 50 fr. per 100 kilos, whereas new paper which has previously served no other purpose costs at least 150 fr. per 100 kilos, however inferior its quality. Were printed paper to be used for butter and similar foods, there might be some ground for protest, but Mr. Montfort can see no reason why the contact of printing ink with potatoes and carrots should be harmful, however evil may be the uses to which printing ink is put in other ways.

New Members of the Academy of Medicine.

At a recent meeting of the Academy of Medicine, in the section of Veterinary Medicine, Mr. Vallee was elected a titulary member in the vacancy caused by the death of a member. Mr. Vallee was formerly professor at the Veterinary School of Alfort, and is at present director of research in the Ministry of Agriculture. He is the author of several works on tuberculosis and foot-and-mouth disease. The new academician also invented, in collaboration with Mr. Leclainche, a serum against the infection of wounds. The Academy also elected, in the fifth division, two foreign correspondents — Sir John MacFadyean, of London, and Mr. de Jong, of Leiden.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics for 1923 of four large towns, which are also shipping centres :—

Name of town.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Bristol	385,600	19·3	11·7	1·2	1·4	1·9	28	62	3·1
Newcastle-upon-Tyne.	283,800	22·4	12·9	1·5	1·1	2·2	38	98	4·1
Portsmouth ..	230,718*	21·1	10·9	1·0	1·2	1·6	24	52	3·6
Cardiff	226,200	22·3	12·0	1·6	1·1	2·1	30	74	4·6

* Civil population, on which the death-rates are calculated. The estimated civil and military population, on which the birth-rate is based, is 252,300.

Bristol.

Dr. D. S. Davies reports that the most encouraging feature of 1923 has been the success attending the work of the trained nurses employed either in the infant welfare and maternity department, or in the work of home inquiry into the causation of disease, the latter duty being now entrusted to three "home nurses." He also thinks that the Bristol and Clifton District Nurses' Society has good claims for municipal support. Dr. Davies quotes with approval the opinion of Dr. Charles V. Chapin (U.S.A.) that hitherto we have attached too much importance to the abatement of nuisances, to the comparative neglect of that class of work which carries advice into the home. The new houses erected during the year numbered 431, of which 88 were part of a municipal scheme. The report of the chief housing inspector shows that the position with regard to unfit houses is steadily becoming worse. There are hundreds of houses in Bristol, he says, which could be rendered fit by the provision of new roofs, floors, and windows, but few owners will face such expenditure. If these houses are allowed to become derelict, they will have to be replaced by new ones, which will cost £400 to £500 each, whereas an outlay of £100 to £150 would give them an additional 20 years' life. It is estimated that 1074 houses will be required annually for the next five years to overtake arrears, and until this is done slum houses and slum areas cannot be dealt with. Dr. Davies insists upon the importance of the provision of wholemeal bread for poor children who have not the advantage of a generous mixed diet. Owing to four fatalities caused by gas poisoning in connexion with bath geysers, the Bristol Gas Company have issued a memorandum to the public insisting upon the necessity for a flue being provided for every geyser, with effective means for the prevention of down-draught, and also for the need of a sufficient air supply to bath-rooms while the geyser is in use. Copies of the memorandum have been sent to the Bristol Master Plumbers' Association and the Association of Building Trades Employers. The Bristol Council has approved of an arrangement for the provision of 60 beds for surgical tuberculosis at the Treloar Home at Alton, and of 100 beds for early manifestations of tuberculosis in children at Frenchay, but both these schemes have been delayed by the Ministry on the plea of economy. The hours of bright sunshine in Bristol during 1923 were estimated to be 1386.

Newcastle.

Dr. Harold Kerr says 1923 will long be remembered for the enormous demands on public assistance rendered necessary by the distress. In spite of the vast expenditure on relief the year's hardships have left their mark on certain sections of the people. There is a sinister increase in the notifications of tuberculosis. Atmospheric pollution, which in recent years has been showing steady improvement, increased substantially in 1923. Since the beginning of July sunshine records have been kept at the Armstrong College, and only 513 hours of sunshine were recorded during the latter half of the year, to be compared with 725 at Cockle Park, a few miles north of Morpeth. The preliminary data in the cancer survey suggest that operative treatment is resorted to later in Newcastle than in other big cities. The occurrence of a case of small-pox in another district in the family of an assistant at a large Newcastle drapery establishment led to all the employees being vaccinated, and the example of this firm was followed by others. Mussels were suspected of causing a case of food poisoning, but the chief sources of the mussels eaten in Newcastle—namely, the Solway Firth and Holland—are certified to be safe, and bacterial examination did not indicate harmful contamination. The specialist services for the treatment of nose and ear discharges occurring as complications of scarlet fever at the fever hospital were continued with satisfactory results. The advantage of this early thorough treatment is incalculable, and lessens one of the well-known problems of education departments.

The attempt to get in touch with defaulting patients of the V.D. clinic by means of letters has been found impracticable, and has been reluctantly discontinued. There is a lack of hostel accommodation for girls and unmarried mothers infected with these diseases. During the last four years there has been a steady decline in the small number of infant deaths certified as due to syphilis. There has also been a decline during the same period in the notified cases of ophthalmia neonatorum. Of the 256 registered blind persons in Newcastle, 57 are said to have been blind from birth, but there is only one blind child under 5 years of age. Both measles and whooping-cough were rampant during the year, and counterbalanced the saving of infant life in other directions. There is much room for improvement in the attendance of expectant mothers at the antenatal sessions. Only 281 sought advice, while 6961 births were registered during the year. In the late autumn the Maternity Hospital which bears her name was opened by Princess Mary. When complete this institution will deal with every aspect of maternal and infant welfare. It is a voluntary institution containing 90 beds for patients, with accommodation for six medical students and 30 student midwives. Provision will also shortly be made for an up-to-date maternity and child welfare centre, an antenatal clinic and wards for wasting infants. Of the births in the city in 1923, 28 per cent. were attended by doctors, 36 per cent. by the maternity hospital, and 35 per cent. by midwives practising privately. Of the latter all but seven are certified by examination.

The pneumothorax method of treating pulmonary tuberculosis is used considerably both at Barrasford Sanatorium and at Walker Gate Hospital. Dr. C. G. R. Goodwin, the superintendent of Barrasford, states that this form of treatment is of very great value for a small proportion of the patients. It would be more useful still if it were possible to persuade the patients to undergo the treatment at an earlier stage of the disease. During 1923 the treatment was adopted in 22 cases out of about 200 patients at Barrasford. In the case of 11 the treatment failed to control symptoms, but in the other 11 the results were excellent. The new and efficient X ray plants recently installed at Barrasford and Walker Gate were of great value in controlling this treatment and also for diagnostic purposes. Dr. Goodwin emphasises the need for colony treatment after the sanatorium. He points out that the class of patients who receive permanent benefit at Papworth Colony are in the main similar to the class passing through Barrasford, but the cases from Barrasford too often return to bad conditions and relapse. He hopes that Newcastle-on-Tyne will give the lead to other municipalities and establish a colony.

The education committee has now established an open-air school for pre-tuberculous children on the corporation Pendower housing estate. Excepting for a small number of beds at Stannington Sanatorium the problem of surgical tuberculosis in children has not been tackled. A comprehensive scheme for a new abattoir with markets, &c., which is badly needed, is now under consideration. Dr. Kerr draws attention to the fact that the penalties imposed for the adulteration of milk are not such as will serve as deterrents. Rather better progress has been made in the conversions of pail closets and middens, but " there remain," says Dr. Kerr, " 4310 of these abominations in the city." Very many more houses are necessary to meet immediate needs. Overcrowding is the rule and subletting still rife, and one constantly comes across the most heartless cases of profiteering at the expense of the unfortunate tenants of so-called " furnished " lodgings. The committee has under consideration the question of appropriate by-laws for dealing with this question. Schemes for dealing with two unhealthy areas have been decided upon, and will be proceeded with when the housing committee has made provision for the dispossessed occupants.

Portsmouth.

Portsmouth may call itself happy with an infantile mortality-rate of 52 and a sunshine record of 1770 hours in a comparatively sunless year. Dr. A. Mearns Fraser informs us, however, that the housing difficulty still remains unsolved, and that the annual provision of new houses is still much below the normal. The health committee endeavoured to get an additional 100 houses for working people built on Portsdown Hill, and offered free sites to builders with roads and sewers already constructed. This represented a subsidy of £88 per house, but there was no response. During the present year a scheme more acceptable to the builders has been devised, and a tender for the 100 houses accepted. Towards the end of the year a tender was accepted for the erection of the first four blocks of flats on the Voller-street unhealthy area. Difficulties arose and the tender was withdrawn, but it is hoped that the blocks will be completed during 1924. The death-rate from pulmonary tuberculosis was the lowest on record. As is well known, Portsmouth has adopted the policy of recommending immediate self-disinfection after exposure to the risk of infection for the prevention of venereal diseases. It is difficult to estimate the effect of this policy, as no information is available as to men who have exposed themselves to the risk of infection, practised immediate self-disinfection and subsequently escaped disease. Of 97 male patients questioned at the V.D. clinic, only 16 had adopted self-disinfection within 10 minutes of exposure, 19 had practised some form of self-disinfection within one to three hours, and 14 at some later period still. Dr. Fraser favours propagandism as to the advantages of the early surgical treatment of cancer, and does not fear that such a campaign would give rise to cancer phobia.

The public analyst, Mr. R. P. Page, gives some particulars as to the testing of designated milks. From January to June, 27 informal samples were taken, out of which only 12 came up to the necessary standard. After this preliminary period formal samples were taken. Out of six samples of " certified " milk one failed to reach the standard, and all six were poor in fat. Thus one sample contained 3·3 per cent., two 3·2 per cent., one 3·15 per cent., one 3·1 per cent., and one 3·0 per cent. Of 13 samples of " Grade A " milk, all reached the standard as regards the number of bacteria, but five out of the 13 failed to secure the absence of *Bacillus coli* in 0·01 c.cm. Mr. Page compares these " Grade A " samples with ordinary milk supplied to local institutions. Of six samples of the latter only one reached the standard as regards the absence of *Bacillus coli*, and Mr. Page repeats the recommendation that hospitals and other municipal institutions should, in future, only accept tenders for " Grade A " milk, so as to create a greater demand for an improved milk-supply. His results " also show that the standard of 200,000 bacteria per c.cm. is vastly in excess of what a milk, produced under normally sanitary conditions, should contain."

Cardiff.

Dr. Ralph M. F. Picken points out that, while the death-rate from all causes has declined during the present century, the death-rate from pulmonary tuberculosis is rather higher during the second decade. A chart is submitted showing that the percentage of total deaths attributed to this cause has gradually increased during the present century from the neighbourhood of 18 to 19 to the neighbourhood of 21 to 22. Dr. Picken's investigation with regard to the effect of overcrowding and bad sleeping accommodation gives a negative result, and he expresses the view that the economic factor takes precedence of housing as the great predisposing cause of tuberculosis, and that the difficulty of securing adequate subsistence at the present time is the likeliest reason for the relatively increased part which tuberculosis is taking as a cause of death. With regard to venereal diseases the most urgent problem is the failure of a large proportion of innocently infected women to attend the clinic. The committee has therefore approved the principle of treating pregnant women, nursing mothers, and children at special clinics arranged under the maternity and child welfare scheme. The obstacles to the full development of antenatal work have been under consideration during the year. Hitherto there has been overlapping between the antenatal clinics of the committee and of the maternity hospital. Dr. Picken reports that a satisfactory scheme has now been evolved, by which a central antenatal clinic will be established at the maternity hospital, which will be conducted by the honorary medical staff of the hospital. The municipal maternity and child welfare officer, assisted by the health visitors, will be associated with the work of the clinic, and antenatal clinics will be opened on the outskirts of the city which will act as feeders to the central clinic. The corporation will accept responsibility for the maintenance in the hospital of Cardiff cases, recognised to be complicated, up to a cost of £2000 for the first year's working. Effective arrangements will be made for the interchange of reports between the antenatal clinics, the hospital, and the clinics for mothers and children. The clinics for mothers and children will be available for the teaching of students and pupil-midwives. The scheme is at present under the consideration of the Ministry of Health. The examination of milk samples indicates that an improvement is taking place. Thus, of 16 samples of ordinary commercial milk 62 per cent reached Grade A standard, as compared with 54 per cent. in 1922, and during the hot months 43 per cent. reached Grade A standard, as compared with 11 per cent. in 1922.

There has been some discussion in Cardiff as to the relative advantages of destructors and tipping. Dr Picken points out that by careful management most of the nuisances attributed to tips can be got over, and sums up : " I have no hesitation in saying that, in a place like Cardiff where there is so much land to be reclaimed, tipping is the best method, provided the tips are properly managed." In a special report to the Burial Board on cremation, Dr. Picken mention that there are religious objections to cremation on the part of Roman Catholics and Jews, who constitute about 15 per cent. of the population. The remaining 85 per cent. of the people are deterred partly by inherent conservatism, and partly by the increased cost and the necessity for certain legal formalities A table is given showing that the number of crema tions in Great Britain increased gradually from 341 in 1898 to 1023 in 1911, and to 2009 in 1922. It is obvious, says Dr. Picken, that the provision of a crematorium in Cardiff will not materially relieve the Board from the task of providing burial grounds in the near future. The open-air swimming ponds at Llandaff and Splott have been well patronised. The Llandaff pond, however, became very unsightly, and Dr. Picken considers that continuous filtration is necessary to make this pond the attraction and educative factor which it ought to be. Towards the end of the year a deputation visited certain large cities in connexion with the proposed reconstruction of Roath market and abattoir, and the city engineer has been asked to prepare plans based on the experience gained.

Dr. Picken does not think the extension of the city, which has added a population of about 20,000, has materially altered the housing problem. About 6000 (if possible 10,000) houses are needed during the decade 1921–31. Only 448 were built last year. Many instances of overcrowding come under notice, of which some examples are given. The record of bright sunshine for 1923, taken at Penylan, was 1555·5 hours.

MENTAL HOSPITALS SERVICE.

THE annual report for 1923 of the *Kent County Mental Hospitals* refers to the work of the two large institutions at *Barming Heath* and *Chartham Down*, accommodating 1700 and 1100 patients respectively. Both, unfortunately, are threatened with overcrowding; in this connexion an extraordinary discrepancy between the admissions in the two sexes at Barming Heath is worth noting, the numbers being 144 males and 236 females. In both hospitals there has been entire freedom from dysentery during the year, and in both success has attended efforts at granting patients more freedom; at Barming Heath 650 patients are in "open-door" wards, and many are allowed parole. The fact that these hospitals are not regarded as "prisons" is evidenced by several applications for voluntary admission, which, of course, in the present state of the law, have to be refused. There are several curious discrepancies not easily understood when it is remembered that these two hospitals are controlled by a single committee. For example, Barming Heath possesses an occupational teacher, and a "sister tutor," whose efforts have been rewarded by a very creditable number of successes in the nurses' examinations; at Chartham there are no such officers, nor are there facilities for giving continuous baths, such as have been installed at Barming Heath. Chartham, however, has the advantage in two respects—namely, in the provision of ward letter-boxes and of night-dresses for the women, neither of which amenities have yet been introduced in the sister institution. If these things are necessary in one hospital, they must surely be so in the other. The visiting Commissioners to Barming Heath also suggest the provision, when feasible, of an additional medical officer, a clinical laboratory, a nurses' home, verandahs, and a clinical room for interviews with patients. In this hospital the practice of staffing male wards with female nurses is being extended, and an enterprising spirit is shown in the fact that "arrangements have been made for special leave to be given to selected nurses in order that they may undergo training in a general hospital." The Christmas service in the chapel of this hospital was attended by no less than 500 of the general public, who subsequently visited the wards; the extension of this excellent practice might well lead to a better understanding by the public of the work of the mental hospitals.

Certain recommendations are made by the visiting Commissioner in the annual report of the *Devon Mental Hospital*, of which a number have already been carried out, the visit in question having taken place early in the year. He suggests the provision of an operating-theatre (the plans for this have now been drawn), ward letter-boxes, and improved sanitary arrangements (these have since been provided), and a more varied dietary, to which attention has also been paid. He also criticises the practice of sending patients out on trial without money allowances, and the provision to the wards of large stock bottles of aperients, to be administered at the discretion of the nurses and attendants. Tuberculosis appears to be unduly prevalent in the hospital, the deaths per 1000 from this disease numbering 26, as against 11·8 for all mental hospitals. Efforts are being made to grant as much freedom to the patients as possible, and these have been attended with success, but a type of difficulty sometimes encountered is illustrated by the case of "a man who has made no less than three attempts at escape since being sent here from Exeter prison 22 years ago. He is of the moral imbecile type, for which nothing but strict discipline is of any avail, and who will always take liberties whenever vigilance is relaxed. It is this class of case which will always hinder the development of the hospital atmosphere if sent to these institutions, and I hope the time is not far distant when some other provision can be made for them. The fact that they come from prison also adds to the stigma which still attaches to mental hospitals, and which it is our earnest endeavour to remove." The report of the recently appointed medical superintendent, Dr. Richard Eager, contains an account of numerous changes in the organisation of the hospital making for efficiency and economy; this should be of considerable interest to the authorities of other such institutions. The introduction of daily diet-sheets, for example, has resulted in the saving of 7140 ordinary diets, which would otherwise have been issued for patients unable to partake of them. The issue of bedding and clothing from the laundry in immediate exchange for soiled articles, stocks being kept there instead of in the wards, has been found to save much time previously spent in marking and sorting, and to obviate the waste of materials which used to occur from the deterioration of unused ward stocks. Rags and waste paper are collected and sold, aluminium is being substituted for earthenware in certain often-broken crockery, such as pie-dishes, and the cleaning of the wards, the supply of tooth-brushes, and the disposal of soiled linen have also been altered. A laboratory has been equipped. The recommendations of the Mental Hospitals Association that increases of pay and bonuses should be given to nurses passing the examinations of the Medico-Psychological Association have been adopted. Nurses are encouraged to make notes on the cases under their charge. The hospital is fortunate in possessing a considerable amount of surplus accommodation.

The annual report of the *Nottingham City Mental Hospital* differs from many other such reports in containing a separate section dealing with mental deficiency. A total of 118 cases has been reported by seven different agencies during the year; there are, therefore, ample facilities for ascertainment. It has been strongly recommended that an institution with at least 300 beds shall be built by the city for the accommodation of its defectives. At present there are 78 cases in various other institutions (including a number of boys at the mental hospital, some of them being warded with men, which is an unsatisfactory arrangement, and some undoubtedly capable of benefit by proper training), 13 cases under guardianship, and 338 under supervision. If the intention of building this institution be carried out, Nottingham will be particularly well equipped for dealing with mental deficiency. Unfortunately, the hospital itself is overcrowded (to the extent of 69 patients), in spite of the boarding out of a number of Nottingham patients in other hospitals, and it is hoped that the provision of the necessary further accommodation may take the form of a detached admission hospital and villas for convalescent cases. It is already intended that a nurses' home and an assistant medical officer's house shall be built. It is observed by the visiting Commissioner that the number of deaths from tuberculosis during the year is almost exactly the same as the number of cases of this disease reported as under observation about a year previously, which "suggests that still further efforts are needed in the direction of diagnosis in the earliest stages." To meet this need he suggests a thorough annual physical examination of every patient, and periodical records of weight, and to combat the disease itself the more liberal use of eggs, milk, and butter in the diet of debilitated patients. The present ascertained cases are being treated on verandahs day and night. Certain suggestions are also made as to employment, the returns under this head being below the average. Money allowances are made to patients on trial. It is also observed that Service patients dine apart from the rest of the inmates.

The annual report of the *Glamorgan County Mental Hospital, Bridgend*, an institution accommodating over 1700 patients, is unusually brief, and includes no visiting Commissioner's report. The only important change in contemplation is the erection of a separate reception block, and a house for convalescent patients; the plans for the latter have already been approved by the Board of Control. A permanent fifth assistant medical officer has been appointed. The engineer has installed an X ray apparatus, and operates it himself with considerable success—surely a very enterprising departure for such an official. Many patients are now allowed to remain up until 10 P.M., and in the summer some are allowed out in the grounds until 9.30, two privileges which are much appreciated and rarely abused. It is of interest that the average gain in weight of recovered cases on discharge is as much as 14 lb.

The report of the *Roxburgh District Board of Control* is concerned with the affairs of one mental hospital, which at present accommodates about 350 patients, 60 less than in recent years, owing to the return of a number of patients to Edinburgh on the reopening of the mental hospital there. No changes are recorded beyond the reconstruction of one of the female wards. It is suggested by a visiting Commissioner that the verandahs should be widened to permit of beds being moved out on to them, and that the female nursing staff, who at present take their meals in the main dining-room before or after the patients, should be provided with a separate mess-room of their own.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDING NOV. 8TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely: Small-pox, 71; scarlet fever, 2106; diphtheria, 1066; enteric fever, 59; pneumonia, 985; puerperal fever, 38; cerebro-spinal fever, 5; acute poliomyelitis, 30; acute polio-encephalitis, 2; encephalitis lethargica, 45; continued fever, 3; dysentery, 2; ophthalmia neonatorum, 106. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 14 from scarlet fever, 43 from diphtheria, 26 from measles, 53 from influenza. In London itself the number of deaths from diphtheria was 13 and from infantile diarrhœa 14.

ROYAL SOCIETY.—The following Fellows have been recommended by the President and Council for election to the Council of the Society. President, Sir Charles Sherrington. Treasurer, Sir David Prain. Secretaries, Mr. W. B. Hardy and Mr. J. H. Jeans. Foreign Secretary, Sir Richard Glazebrook. Other members of Council: Sir Frederick Andrewes, Prof. J. H. Ashworth, Dr. F. W. Aston, Sir William Bragg, Prof. S. Chapman, Sir Dugald Clerk, Dr. H. H. Dale, Prof. F. G. Donnan, Prof. A. S. Eddington, Prof. E. S. Goodrich, Sir Thomas Holland, Prof. J. B. Leathes, Prof. T. R. Merton, Dr. G. C. Simpson, Prof. J. F. Thorpe, and Prof. F. E. Weiss. The Earl of Crawford and Balcarres and Sir Otto Beit have been elected Fellows of the Society under the statute which permits of elections on the grounds of conspicuous services rendered to science.

DENTAL BOARD OF THE UNITED KINGDOM.

THE opening of the seventh session of the Dental Board was held on Nov. 11th. The members present were Mr. F. D. Acland (Chairman), Mr. R. C. Ackland, Mr. W. F. Bowen, Mr. L. G. Brock, Mr. F. Butterfield, Mr. W. H. Dolamore, Mr. H. J. Waring, Mr. W. Guy, Sir James Hodsdon, Mr. A. Young, Mr. J. J. Andrew, Prof. T. Sinclair, Mr. J. H. Stirling, and Mr. Norman C. King (Registrar).

THE CHAIRMAN'S ADDRESS.

The Chairman, in his opening address, paid a tribute to the work of those members of the first Board who had not been re-elected: Sir Arthur Chance, Mr. E. L. Sheridan, Mr. W. H. Gilmour, Mr. H. A. Robertshaw, and Mr. D. McG. Cowan. In their place he welcomed Prof. Sinclair, Mr. Andrew, Mr. Ackland, Mr. Bowen, and Mr. Young. Continuing, he said that when the new Dentists Acts were under consideration in the House of Commons he gave an undertaking that the question of the annual practising fee should receive careful consideration. A special meeting of the Board was held in October at which this formed the principal item of business, and the decision of the Board, which was unanimous, was that no alteration in the present fee of £5 should be made until there had been further experience of the claims likely to be made on the Board's funds. It was realised that in these times some members of the profession might well have difficulty in paying a comparatively heavy annual fee, and the question of reduction would not be forgotten.

The Departmental Committee, in view of the monopoly of practice which was to be given to dentists, were of opinion that it would not be unreasonable to expect them to give some assistance to persons who were prevented from entering the profession from want of means, and this the Board had endeavoured to do by providing bursaries, which, in really necessitous cases, provided not only for the necessary fees, books, and instruments, but also for maintenance during the curriculum. These bursaries were brought to the attention of the education authorities throughout the kingdom by means of a circular letter, but the applications had not been so numerous as might have been expected, and so far the Board had not been obliged to refuse any applications owing to want of funds. There was probably, he said, at the present time no other profession in the country into which a student who was qualified to take advantage of professional training might obtain entry practically without any cost to himself, and it might be hoped that the education authorities would continue to bring before their students the advantages offered by the Board.

Free Choice of Dentist.

Many communications, said Mr. Acland, had reached the Board with regard to the action of approved, coöperative, and other societies which, in providing dental aid for their members, did not allow a free choice of dentist. The Board were of opinion that patients should be allowed to select the practitioner whose advice they desired to seek, provided the dentist was prepared to enter into the arrangements made by the society for remuneration. Numerous complaints had, however, been received that the patients of one practitioner had been, through the agency of a society, transferred to another, but it was difficult for the Board to take action except upon a definite complaint that whatever had been done on behalf of a practitioner, or practitioners, amounted to advertising or canvassing. Were such a complaint made, the speaker was sure that the Board would be willing to adjudicate upon it.

The Board considered it highly desirable that the attention of the public should be called to the great importance of the care of the teeth, and with this object they had in preparation kinema films which might be utilised by medical officers of health and others for teaching this subject, and an endeavour was to be made to have them displayed also at the kinematograph theatres. With the assistance of Sir George Newman, it was hoped to arrange for short talks to be broadcasted from time to time, and communications had been entered into with approved societies to endeavour to enlist their coöperation so as to cover the very important period between school age and that of persons coming under the Insurance Acts—viz., the age between 14 and 16. Other methods of teaching oral hygiene were also under consideration, and the Chairman considered this to be one of the most important parts of the Board's work.

Advertising.

The Board had expressed their disapproval of any announcements which were more than sufficient to indicate to persons seeking them the exact location and entrance to the premises at which the dental practice was being carried on. At the present time the correspondence in connexion with this matter was very heavy, and though considerable diminution of the evil was taking place, many practitioners appeared to be keeping up as much of their announcements as they thought they could safely retain, in the hope that, before any drastic action was taken, they would receive a warning, and that in the meantime they would reap such benefit as might be from their improper actions. The Chairman feared that some of them might realise, if their names were removed from the Register, that they had taken a mistaken view of the position.

Practice by Non-registered Persons.

In the course of this year, by permission of the authorities, communications had been addressed to chief constables throughout the kingdom, asking for their coöperation in carrying out the provisions of the Dentists Act, 1921. They had been supplied with copies of the Register, the local lists, and the names of those persons who had not taken out their practising fee. The report of the Discipline Committee showed the very satisfactory result of this action. Without exception the police had been most helpful. In some cases the police had undertaken the prosecutions themselves; in others they had supplied evidence and the Board had taken the necessary action. It was proposed to continue the pressure next year, and the Board hoped that before very long it would be mpossible for any unregistered person to contravene the Acts without being swiftly brought to book.

RESTORATIONS TO THE REGISTER.

The Registrar reported that, the prescribed conditions having been duly fulfilled in each case, the names of the undermentioned persons had been restored to the Dentists Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878: Arthur Bolton, Arthur Reginald Colyer, Thomas Elliott, Henry Kirk, Edwin Morgan.

DISCIPLINARY CASES.

The Board resumed the consideration of six cases adjourned from the previous session. Two were concerned with registered dentists who had associated hemselves with corporate bodies carrying on the business of dentistry and advertising with a view to procuring patients, and three were cases of advertising, by individual dental practitioners, by means of lectric and other signs exhibited on their premises. n all the cases the Board decided that while they were determined to press forward quite steadily with the work of securing that announcements of dental practices should not be more than would be considered easonable and proper in connexion with other professional practices, they would nevertheless not ecommend the removal of the names of the persons oncerned from the Dentists Register. In one case where the dental practitioner had been convicted at police court for the misdemeanour of indecent xposure, the finding was that the name should not be removed from the Register.

Fourteen new cases were dealt with during the remainder of the first meeting of the session and at the meeting on the following day. Six of the cases were concerned with advertising. In four the finding of the Board was that the names of the dental practitioners involved should not be removed from the Register, and in two the finding was postponed until the next session. There were two cases of false entry in the Register. In the first, the dentist had stated he was engaged in the practice of dentistry as required by the Dentists Act of 1921, whereas he had been in receipt of unemployment benefit. This case was adjourned. In the second, the dentist had made a false declaration of his age; in this case the Board directed the erasure of offender's name from the Register. Two cases of police-court conviction, one for fraud and one for drunkenness, were adjourned. In three cases the names of dental practitioners were removed from the Register, where the offenders had been convicted in the police courts on the following charges, respectively: (1) Ten charges of fraud; (2) living on prostitution and theft; (3) embezzlement and obtaining money on false pretences. For covering an unregistered person in dental practice, the offender's name was removed from the Register. In all, five names were erased.

A NATIONAL SERVICE OF MENTAL NURSES.

SINCE March, 1922, a Departmental Committee of the Board of Control has been deliberating, under the guidance of Dr. C. H. Bond as chairman, on the directions in which the nursing service in county and borough mental hospitals could be improved. Its members include two medical superintendents (Dr. G. F. Barham and Dr. H. Wolseley-Lewis), two representatives of visiting committees (Mrs. Edith How-Martyn and Mr. E. A. Medus), a Commissioner of the Board of Control (Mrs. Hume Pinsent), a matron of a mental hospital (Miss M. M. Thorburn), and members of county and borough councils (Dame Louise Gilbert Samuel and Mr. E. Sanger), with Mr. H. J. Clarke, of the Board of Control, as secretary. Twenty-four meetings have been held, excluding meetings of subcommittees; 12 witnesses have been examined, including a Commissioner of the Board of Control, medical superintendents, members of the General Nursing Council, matrons, and male nurses; moreover, numerous conversations have been held with nurses working at mental hospitals, from whom, as from others, written communications have also been invited.

The report [1] just issued by the Committee is at once temperate, wise, and suggestive. The outline set out early in the report of the principles agreed on by all the members as a foundation on which to build their labours is a useful guide to the point of view from which the subject was approached. The main difficulty which, though not specifically set out, must have modified the conclusions and recommendations arrived at, is that improvement of the nursing service in quantity as well as quality of applicants for training is desired, and that, unless most carefully planned, a recommendation designed to achieve one of these ends may seriously damage the others. For example, the quality of the end-product—the trained mental nurse—may be definitely improved by insisting on a high standard of preliminary education and on the attainment of the certificate of the Medico-Psychological Association; these requirements might have the effect of discouraging probationers of a less ambitious but potentially useful class.

On the whole the recommendations have been well framed to avoid this dilemma, and where any conflict of aims arose, the Committee in every case adopted the high ideal of attempting to improve the quality of the service in the hope that increased status and emoluments of trained mental nurses will make the career attractive to a greater number of educated women.

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[1] Report of the Departmental Committee appointed to inquire into the Nursing Service in County and Borough Mental Hospitals. London: H.M. Stationery Office. 1924. 1s. 3d.

Grading in Hospitals and Nursing Establishments.

The Committee urge that the nursing service in county and borough mental hospitals should be organised and developed on systematic national and professional lines. To this end mental hospitals should be graded according to adequacy of facilities for training nurses, and individual nursing establishments in accordance with a scheme bringing the nomenclature and status of the higher grades into line with that customary in general hospitals.

Reciprocity Between Hospitals.

Reciprocity for training purposes between mental hospitals of different grades and between each mental hospital and a general hospital is regarded as essential. This organised coöperation is indeed a cardinal feature of the scheme outlined and is a valuable suggestion. It is considered of extreme importance that the facilities already existing in some places for seconding mental nurses to general hospitals should become universal and that authorities should encourage trained mental nurses to take a general nursing certificate, which they can obtain by two years work in an approved general hospital. Conversely, the establishment of training schools in mental nursing would serve as an added inducement for general trained nurses to gain experience of mental disorders and an understanding of elementary psychology, both normal and morbid, which will be found increasingly necessary in general nursing. The Committee feel that the existence of facilities for seconding mental nurses to general hospitals for training is so important that they hope such facilities may be found practicable without any interference with pay or superannuation allowances dependent on continuous service. The scheme of affiliation recommended has for its object the establishment of an organisation of hospitals for training purposes which will secure: (1) efficient and economical use of material and personnel; (2) uniformly sound training and the diffusion of technical knowledge and methods through the widest possible interchange; and (3) coördination between different branches of nursing.

Arrangements for Teaching: Hours of Duty.

As to the improvement of the teaching of nurses, several recommendations are made, including a period of initial tuition for probationers before any ward duty is assigned to them, the appointment of a sister-tutor at each hospital approved as a training school, the provision of annual refresher courses for certificated nurses, and such rotation of duties among sisters as would encourage those aspiring to the higher administrative posts. These, however, should for the most part be offered facilities for supplementing their mental training by two years in a general hospital, for the higher posts should be given only to those with a double training. Those of the present staff with good and satisfactory service, who are unable to obtain the mental nursing certificate, should continue to receive recognition and adequate status; they should be graded as attendants or charge attendants, and there should be a distinction in pay between them and certificated nurses, in favour of the latter. As for remuneration of nurses, it is held that the prevailing rates differentiate inadequately between the inexperienced and the trained personnel, and there is insufficient inducement to study and to advance in the service. The rates paid to similar grades throughout the country are held to vary unduly.

No rigid scheme as to hours on duty has been or, in the view of the Committee, could be laid down, but it is suggested that the aggregate of the hours on duty in one week, exclusive of meal times, should not exceed 56. When the hours exceed 48, four weeks' annual leave, preferably taken as two weeks every six months, should be allowed to all certificated nurses. Probationers under training should be allowed three weeks' annual leave.

Special nurses, to whom could be allotted the charge of any individual patient at the discretion of the medical staff, should be available.

The Financial Aspect.

Certain other recommendations are concerned with the means of attracting suitable applicants for training. It is believed that, with the institution of organised universal training and the creation of adequate prospects, the status of mental nursing will be considerably raised, and there will be less difficulty in the recruitment of suitable personnel. Inasmuch as training must entail some expense, the Committee are of opinion that probationers should be bound by agreement to remain for the full period of training.

This recommendation seems to us likely to defeat its object. Stress is laid on the fact that the nursing of mental patients should be looked on as a vocation and not undertaken lightly. The work is, however, difficult to visualise beforehand, and the dread of being pledged to remain in a mental hospital for three years' training for work which after trial may prove uncongenial is likely to prevent educated girls or their parents from considering this career. The actual cost of training would be equally wasted if the candidate were to stop nursing after having acquired her certificate and the only thing gained to the hospita might be three years of unwilling service. The Committee's further suggestion for meeting the cost of training of nurses is a sound one. Inasmuch as training schools will not and cannot be self-supporting institutions, and in view of the fact that it is of national importance to secure properly trained nurses for mental hospitals, the Committee is of opinion that a portion of the cost of maintaining recognised training schools should be met out of a Government grant administered by the Board of Control.

Increased Powers for the Board of Control.

A strong appeal is made to visiting committees to give effect to these recommendations, and it is made clear that success of any such scheme depends on its adoption throughout the country. The appointmen upon the inspectorate of the Board of Control of a doubly-trained nurse of wide experience and capacity who would maintain close touch with questions of nursing in mental hospitals throughout the country and be at the service of the various medical and nursing officials as an adviser, is suggested. At present too little coördination exists between the various local authorities controlling the mental hospitals throughout the country for them to develop a mental nursing service on a national basis. The suggestion which concludes this admirable report deals with this aspect as part of an even wider one. The Committee see a solution for this and other problems in enlarging the scope and extending the power of the Board of Control from that of an advisory body to that of a body responsible for administering a Governmen grant-in-aid. They say: "While the subject is not strictly within our reference, our inquiry has impressed us with the need for concentrating the responsibilities in connexion with mental health in one statutory committee of the county or county borough council. We are further of opinion that the cost of the maintenance of mental cases, at present defrayed by Poor-law authorities, should be a charge upon the county or county borough rate; and that a proportion of the cost should be borne by a Government grant distributed by the Board of Control with power for the latter to withhold it in cases of inefficiency."

It is likely that in this direction will be found the solution not only of the nursing, but of many other cognate problems.

Correspondence.

"Audi alteram partem."

THE ALLEGED STERILITY OF PRESENT-DAY BACTERIOLOGY.

To the Editor of THE LANCET.

SIR,—In a leading article in your issue of Sept. 20th your readers are informed that bacteriology is in a stagnant condition and that no discovery "of first-rate importance" has been made "for many years." Sentiments in surprisingly similar vein are expressed by Prof. A. E. Boycott in the course of his address at Montreal, reported in your issue of Nov. 15th. The undiscriminating reader must inevitably conclude that bacteriology is in a parlous state, but is there really the smallest justification for these gloomy views? When a writer uses the expression "for many years" we may assume that he means at least 20. Are there no discoveries "of first-rate importance" to catalogue to the credit of bacteriological science in that period? Perhaps I should avoid the word *science* at this juncture. Let me say "utilitarian bacteriology."

Since 1904 it has revealed the specific causes of syphilis, yaws, epidemic jaundice, and yellow fever, to mention only a few instances culled from human disease. It has gone far to elucidate the specific ætiology of poliomyelitis, typhus fever, trench fever, and quite recently of scarlet fever, while it has made possible the solution of many pressing epidemiological problems, such as the spread of typhoid and allied infections, of Malta fever, and of bubonic plague. Of the results of coöperation, in an equally utilitarian manner with its sister science, immunology, may I mention the Wassermann test, the Sachs-Georgi test, the Wilson-Weil-Felix test, the Schick test in diphtheria, and the Dick test in scarlatina? I need instance no more, as Prof. Boycott would doubtless class them as thoroughly third-rate, because utilitarian. To him they are finished, and consequently devoid of uplift and inspiration to the philosophic mind. By the same token, I presume, insulin would cease to inspire the physiologist and biochemist the moment it was found to possess some value in the treatment of diabetes. Let those who will or who cannot help it go on exploiting these discoveries in the cause of pathological diagnosis and public health. Scientific bacteriology must take no concern with them. It must develop and foster the study of bacteria for their own sake, whatever that may mean. It must find out how micro-organisms generally live, move, and have their being away from such contaminating influences as association with other living things, be they plants or animals. This, to Prof. Boycott, but I hope to few besides, is envisaged as a virgin field and should be handed over to the botanists who would then become the exponents of scientific bacteriology.

Well, if bacteriology was started on its way by a chemist of immortal fame and strictly utilitarian outlook, it, most fortunately for humanity, did not find a home in the botanical nursery. If scientific bacteriology is now to be nursed by the botanists I have no objection, but I am quite satisfied that the lack of the medical tradition, with its highly elaborated technical methods, will handicap them for many a day in their dealings with bacteria. Let me instance what is in my mind. In the field of systematic classification can the botanists afford to cling to old-fashioned morphological criteria and ignore the biochemical and serological elaborations of the "old hand"? Surely not. And have the old hands done really nothing in this academic field? To be sure they have. Unlike Prof. Boycott, enterprising spirits have found even the Wassermann reaction an inspiration, and have rightly studied its raison d'être as a pathological problem, not as a pathological curiosity as Prof. Boycott seems to regard it. Does it stand so unrelated? Have we not the Weil-Felix and possibly many other non-specific precipitation phenomena? Have we not also our exponents of bacterial cycles, nay even of theories of hybridisation in bacteria? That the work of these latter has so far cut but little ice is probably due to a combination of circumstances, among which exuberant imagination and inadequate technical training are pre-eminent.

I protest strongly against any insinuation that bacteriology has ever threatened to stagnate since those halcyon days of the 'eighties, when a man might immortalise himself any morning by finding a diphtheria bacillus or a trypanosome. We bacteriologists are the proud possessors of a superstructure of traditional knowledge and achievement that will inspire us to further endeavour for many years yet, but I should err if I were to assume that all is well and well-ordered in bacteriology. Our science has grown beyond all conception in recent years. No one man can keep abreast with its advances in animal and plant pathology, not to speak of its ramifications in diverse industrial fields. A survey of the labels on the culture tubes of the National Collection can but impress the expert in a branch with a profound sense of ignorance and humility.

Can anyone, then, dictate what particular feature of bacterial life and action is best worth study from the standpoint of academic culture? The recently instituted courses at Manchester and elsewhere will doubtless foster a broader outlook in bacteriology, but they cannot afford to lose the inspiration that our traditional and utilitarian bacteriology can give them. All success to them!

I am, Sir, yours faithfully,
J. C. G. LEDINGHAM.

Lister Institute, London, Nov. 17th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—The Secretary of the British Dental Association calls the Dentists Act of 1921 "a sacrifice" on the part of the dental profession. The Act has placed the dental profession in a position held by no other body of men, medical, legal, or industrial. Under the Act no one unless on the Dental Register may practise dentistry in any way. If a child has a loose shell of a temporary tooth and the mother, teacher, or nurse removes it with a piece of cotton, it "would render the operator liable to prosecution." If we doctors had a similar Act, the Jews could not perform circumcisions, the chiropodist could not cut corns, the profession of midwife would be abolished, and the Church and the Christian Scientists could not do their healing by faith.

The Act has placed the dentists in a privileged position, but there was one little section inserted for the protection of the public enabling "minor" work to be done in a public dental service under the personal supervision of a registered dentist, on conditions laid down by the Minister of Health. For years educated young women, specially trained in the detection and treatment of early caries, have been employed in Derbyshire, Shropshire, Sheffield, &c., under the supervision of the school dentists. Mr. Lindsay ignores the fact that these dental dressers are *trained* and passed by dentists. In my report (a copy of which I will gladly send to any of your readers) I give details of their training. If it is insufficient, by all means let us make it more thorough. The Minister of Health has power to prescribe the training. Let there be, too, an examination in the work they will have to perform. This is done in New Zealand; why not here? The work of our dental dressers has been examined by six eminent dentists, and no one has been able to detect any fault with it.

Now let us look at Mr. Lindsay's proposals. He writes: "The school nurse can by a glance into the mouth of a child and by one or two simple questions ascertain whether there is need for the child to go to the school dentist." This means that caries is to spread in the teeth of the school-children until a nurse can see a hole or the child has pain. This is all wrong.

By employing specially trained young women, expert with probe and mirror, we detect and refer to the dentists incipient caries at its earliest stage, when prophylactic permanent fillings can be inserted without pain. This is the bulk of the work; all doubtful cases the dentists deal with themselves. If dental dressers were permanently recognised we could employ more part-time dentists in private practice. If a dentist devotes his whole time to school work without the assistance of dental dressers, in a few years he will forget all the higher branches of his profession. The best men, recognising this, will resign, and only the indifferent practitioners will remain in the school dental service. Putting the whole of the work, including the inspections in the schools, on to dentists without the assistance of dental dressers would lead to an inferior type of practitioner, and the salaries paid would be small. But if a dentist had dental dressers working under him he would command a higher salary, and his work would be more interesting.

Mr. Lindsay's comparison of trained dental dressers with unqualified medical assistants is wide of the mark. The trained midwife reigns in the stead of the unqualified assistant, and in this county carries out 70 per cent. of the midwifery. If the British Dental Association had investigated what we are doing, I am sure Mr. Lindsay would never have written his letter. If they would do so now and they found our work is not of the highest professional standard, I will withdraw my advocacy of dental dressers. In my letter of Oct. 6th I pointed out the necessity for dental benefit being provided under the Insurance Act, that nothing is yet done for children under school age and for expectant mothers, and next to nothing for the tuberculous patients. All this work cannot be done unless trained dental dressers are employed working under the supervision of dentists.

Mr. Lindsay and I ought not to be engaged in wordy warfare, but should be putting our heads together to approach such agreement as might be of help to the Ministry in preparing a Public Dental Service in which those dentists in private practice who have the time may take part.—I am, Sir, yours faithfully,

Derby, Nov. 17th, 1924. Sidney Barwise.

To the Editor of The Lancet.

Sir,—The discussion of the dental dresser seems now to have reached essentials. It is the "dental hygienist" whom I would like to see acclimatised and given responsibility. This officer appears to be approved by Mr. Breese, and Mr. Lindsay says is sanctioned by Circular 1279. It is this circular which raises the administrative trouble, because it insists on the work being done under the eye of the dentist, thereby restricting the numbers and making it more costly. That is where the hold-up comes in the school dental work; and that is why the numbers of dentists on the Register were not germane.

The next question as to whether anyone can be trusted to do simple fillings, extract deciduous teeth, or 6-year-old molars one would think should answer itself. I believe that anyone, not a moron, could easily attain a satisfactory proficiency here with a special 12 months' training. It is certain that the majority of deciduous teeth will continue to be extracted in the absence of either a dentist or dental dresser. Although a caveat might be entered on behalf of the 6-year-old molar I would be disposed to go as far as Dr. Barwise, and trust it also to the dental dresser to handle or refer for further dental advice. It was the tooth whose fate first concerned me in school inspections 30 years ago. The consensus of various dental advisers then was that for board school children it was not worth troubling to do anything here but extraction, a counsel which never, however, commended itself. Within the past 12 months advice was given in a prominent discussion to remove adolescent 6-year-old molars for prophylactic reasons.[1] Evidently the confiding of these teeth also to the dental dresser does not involve disaster. Possible dangers must be absolutely negligible compared with the risks of midwifery where officials of a corresponding status act for the public advantage.

School hygiene in England has been in a condition of stasis for years now, with the exception of the beginnings and advance of this matter of dental hygiene whose promise is already great, so great that as soon as it becomes known the country will demand full care. So pressing is the need that it would be worth while establishing dental hygienists in responsible work under definite rules and control, and leaving the discussion of extractions over till prophylaxis by instruction and example has got well into action, the numbers requiring dental operative work will then begin to fall and the question may never arise. The immediate call is for removal of the hampering regulation of only working under the personal supervision of the dentist, and restricting the number who may so work. This circular practically puts the work as a matter of educational organisation out of court, reducing its volume to a fraction, apart from the unnecessary increase of cost.

I am, Sir, yours faithfully,

Mecklenburg-square, W.C., Nov. 17th. James Kerr.

CANCER AND SOME OF ITS SIGNIFICANT CHEMICAL REACTIONS.

To the Editor of The Lancet.

Sir,—I was most interested to read in your columns of Nov. 1st Mr. Archibald N. Currie's reply to my letter on the above subject, especially as we are more or less in agreement on the various points raised. There is, however, some little misunderstanding due probably to the rather vague way in which I expressed my experimental findings.

The importance of the rôle of cholesterol in the iodine values of fat in carcinoma cases was queried by Currie. I did not mean to imply that the increased unsaturation was directly proportional to the increased cholesterol content and a single example will clear this point. Using pure cholesterol from the human brain and pure triolein, an extreme mixture of 72·7 per cent. cholesterol with 27·3 per cent. triolein (i.e., 0·12 g. cholesterol and 0·045 g. triolein) had an iodine value of 65·5, a value which is considerably less than that of either cholesterol or triolein. This is, perhaps, not unexpected and is reminiscent of the phenomena seen in mixed melting points of substances. Nevertheless, the iodine value is greater than that given as "normal" for adipose tissue. Thus it appears that the amount of cholesterol present has a distinct bearing on the iodine value. Also from the intensity of colour in the Borchard-Liebermann test it is obvious that the cholesterol is not present wholly in the free state but a little is in the ester form—viz., as palmitate and oleate. An increase or decrease in the blood cholesterol is so influenced by a multiplicity of conditions, diet being the chief, that estimation of the cholesterol content cannot possess any diagnostic value. However, in the Shaw-Mackenzie serum test for cancer, cholesterol apparently does have a function.

With regard to the lipoclastic activity which was another point raised by Currie, it is generally recognised that the free fatty acids, whether saturated or unsaturated, are more utilisable by the tissues than are the fats themselves. Freund and Kaminer in 1913 found that there was a decrease in the fatty acid content of cancer serum as compared with the normal, and more recently Waro Nakaharo (*Journal of Experimental Medicine*, 1924, Vol. XL., p. 363) finds that oleic, linolic, and linolenic acids have a distinct immunising action against transplanted cancer in mice. Therefore, it seems possible that deficient lipoclasis may play a part in cancer.

I am, Sir, yours faithfully,

H. Gordon Reeves, M.Sc., A.I.C.

Department of Physiology, King's College,
Strand, W.C. 2, Nov. 14th, 1924.

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[1] Brit. Med. Jour., Dec. 1st, 1923, p. 1044.

LABORATORY CHANGES AT A HOSPITAL.

To the Editor of The Lancet.

Sir,—Our attention has been drawn to a circular sent to the medical practitioners resident in the N.W. district of London by the Secretary of the Hospital for Epilepsy and Paralysis, Maida Vale. This circular states that the committee of the hospital had now arranged its laboratory "with a biochemist and bacteriologist," and would be willing to undertake clinico-pathological examinations for the doctors in its neighbourhood. A list of fees for individual examinations was enclosed.

The secretary of the Maida Vale Hospital seems to have hit on an arrangement whereby the laboratory may appear on the "asset" side of the hospital balance-sheet; we think it is only fair to point out to the practitioners concerned that the arrangement has only been made possible in this instance by the elimination of the ordinary type of hospital pathologist. The laboratory staff of the Maida Vale Hospital consists at present of (1) an honorary pathologist, who is one of the junior honorary medical staff and who is also neurologist to a large teaching hospital, and whose time is therefore largely occupied with teaching and clinical work; (2) a graduate in science with some training in an asylum laboratory; and (3) other technical assistants. The description of the staff as including "a biochemist and bacteriologist" is therefore somewhat misleading.

We are, Sir, yours faithfully,
J. G. Greenfield.
David Nabarro.
Alfred Piney.
London, Nov. 15th, 1924.

COMPLETE TRANSPOSITION OF VISCERA.

To the Editor of The Lancet.

Sir,—Cases of complete transposition of viscera are not so very common, hence it seems desirable to record this. A Hindu boy, aged 8 years, attended the out-patient department of the Medical College Hospital for treatment of kala-azar. Palpation of the abdomen revealed a tumour in the right hypochondriac region, extending downwards and inwards to about the level of the umbilicus. This tumour had a splenic outline and there was a distinct notch in its anterior margin. The liver was felt in the left hypochondrium and was slightly enlarged. The boy was admitted into hospital on August 16th, 1924. X ray examination showed the heart on the right side of the chest. Skiagrams of the abdomen taken after a bismuth meal showed that the stomach was mainly situated on the right side of the abdomen with its cardiac end under the right cupola of the diaphragm, and the duodenal bulb on the left side of the middle line. The cæcum and the ascending colon were found on the left side. The descending and sigmoid colon was situated on the right side of the abdomen.

I am, Sir, yours faithfully,
N. C. Kapur, M.R.C.S. Eng.,
Capt., I.M.S.
Calcutta Medical College Hospital, Sept. 30th, 1924.

QUININE IN CASES OF ERYSIPELAS.

To the Editor of The Lancet.

Sir,—The use of Warburg's tincture in tropical countries for a large variety of ailments suggested to me the extended use of quinine in this country, and during the past 23 years I have substituted quinine for salicylate of soda and never regretted having done so. In cases of erysipelas quinine acts like a charm, the patients feeling so well generally that their sole desire is to resume their duties irrespective of appearances. The local lesion is treated by quickly brushing over the affected area (and 1 inch beyond, if possible) an application made up of one part of tincture of iodine to seven parts of Keith's anæsthetic ether, once daily. The general treatment consists in giving orally, every two hours, 10 gr. of sulphate of quinine undissolved, 10 minims of spirit of chloroform, and ½ minim of essence of peppermint in 4 oz. of cold milk. When the temperature and pulse become normal, or nearly so, reduce to every six hours. Erysipelas is fortunately a rare disease nowadays and it is impossible to give statistics as one can do in other diseases. Nevertheless, the results obtained during the past 11 years seem to justify anyone trying the above treatment, and I am convinced that they will not be disappointed.

I am, Sir, yours faithfully,
John Wishart, M.D., D.Sc., F.L.S.
Newcastle-upon-Tyne, Nov. 14th, 1924.

THE VENUE OF THE REX *v.* HADWEN TRIAL.

To the Editor of The Lancet.

Sir,—In suggesting that "partisan" feeling decided the finding of the jury in the above case, your legal correspondent puts himself in a two-fold dilemma.

1. If a Gloucester jury could not be trusted to give a verdict against Dr. Hadwen by reason of partisanship, how were nine men out of twelve found to give such a verdict at the coroner's jury?

2. If a Gloucester jury was bound to favour Dr. Hadwen, why did the coroner send an affidavit to the King's Bench Division urging the change of venue "in the interests of the accused, as well as in the interests of justice"?

May I challenge a reply to these questions?

I am, Sir, yours faithfully,
Beatrice E. Kidd,
Secretary, British Union for Abolition of Vivisection.
32, Charing Cross, S.W. 1, Nov. 8th, 1924.

⁂ The correspondent whose remarks Miss Kidd criticises writes as follows: "The Secretary of the Anti-Vivisection Society has sharpened the four horns of her admirable dilemma in vain, for nobody but themselves can say what was in the mind of (1) the jurymen, or (2) the coroner. It is only fair, by the way, to the latter to recall that the Lord Chief Justice in dismissing the application to change the venue observed that the prosecution had 'looked at the matter with the utmost impartiality.' Are we not agreed on the general principle that trials are best conducted in a calm atmosphere, just as cricket matches are best played without barracking? Whether the atmosphere of this trial was ideally calm is perhaps a matter of opinion on which I may have been mistaken, but the judge's rebuke to the spectators after the verdict confirms the impression I had received from the newspaper reports."—Ed. L.

A DISCLAIMER.

To the Editor of The Lancet.

Sir,—My attention was recently called to a pamphlet entitled "The Ætiology and Treatment of Pyorrhœa," published by the Ainslie-Walker laboratories, in which a quotation has been made from a note of mine in The Lancet without my knowledge or consent. A letter to the firm produced the amazing statement that "the quotation in such cases is of itself a compliment, to which I learn with surprise you seem to take exception." Under the circumstances I shall be obliged if you will give me the opportunity of stating not only that I do not agree with the treatment of the cases to which I referred in the note by intestinal "disinfection" with dimol, but that I am opposed to this procedure.

I am, Sir, yours faithfully,
A. Knyvett Gordon, M.B.
10, Bedford-square, W.C. 1, Nov. 18th, 1924.

Obituary.

JOHN FRANCIS WALKINGAME TATHAM, M.A., M.D. T.C. DUB., F.R.C.P. LOND. & IREL.

SINCE his retirement from the post of Superintendent of Statistics at the General Register Office in 1910, Dr. Tatham, whose death took place at his residence in Oxted, Surrey, on Nov. 8th. at the age of 80, had lived a retired life, first at Lynton in Devonshire and afterwards at Oxted, and his old friends and colleagues had but few opportunities of meeting him. A few years ago he took Holy Orders, thus following his son who died before him, and he did useful and unassuming work in the Church.

John Francis Walkingame Tatham received his medical education at the University of Dublin, taking also qualifications at Glasgow. He went quite early into the public health service, and his first appointment, which gave proof of mastery of the principles of vital statistics and their application to preventive medicine, was that of medical officer of health for Salford, now some 50 years ago. He had there to struggle with the numerous insanitary conditions and the bad housing of a densely populated area; but already his statistical leaning was evidenced in the elegant and valuable statistical tables published in his annual reports. To these tables he evidently devoted great study, and they contained in manageable form most valuable comparisons between the current experience of Salford and that of other urban communities.

With his appointment as medical officer of health of the twin city of Manchester, Dr. Tatham's responsibilities and opportunities increased. From the point of view of efficiency of public health administration his post could not be described as a happy one. There was an unnatural divorce between the medical and sanitary work of the city, while he had no control over or claim on the time of the inspectors of nuisances employed by the corporation. To some extent this difficulty was met by utilising the district health nurses of the Manchester and Salford Sanitary Association; but these were relatively unskilled persons, and there can be no doubt that for some years epidemiological inquiries were carried out in Manchester in circumstances which hampered efficiency. The recognition of the work of these women had important indirect effects, for they can be regarded as the forerunners of the health visitors who are now in the van of child hygiene in this country.

Dr. Tatham's reports on the health of Manchester were characterised by the same statistical care as his earlier reports for Salford. In the year 1892 he published the first "Manchester Life-table," in which we see the earliest outcome of his friendship with Mr. Noel A. Humphreys, of the General Register Office. Mr. Humphreys made valuable suggestions as to the life-table, and Mr. A. C. Waters of the same office undertook the mathematical section; but the text of the report is Dr. Tatham's own, and displays a mastery of the problems concerned. Perhaps the most interesting part of the report is his answer to the question set at an earlier date by Mr. Noel Humphreys, "Are we young longer, or mature longer, or old longer?" Without going into detail, the conclusion reached is that men aged 25 in Manchester lose 1/6 of their normal period of maturity (ages 25–65), and 1/10 of their normal period of decline. One of the chief uses of a life-table is to enable a summarised statement to be given of the relative vitality in different communities; thus Dr. Tatham's life-table made it possible to state that in 1881–90 the future life-time of males in Manchester township was 28·8 years, as compared with 34·7 years in the whole city, and with 40·7 years in London and 43·6 years in Brighton. Subsequently Dr. Tatham published a second Manchester life-table, dealing with the experience of 1891–1900, and this was almost simultaneous with his transfer to the post of Superintendent of Statistics at the General Register Office, on the resignation of Dr. W. Ogle.

Dr. Tatham thus succeeded to the office which William Farr had made an essential part not only of the science of statistics, but also of the history of public health progress; and his friendship with Mr. Noel Humphreys, who had for many years been closely associated with Farr, ensured continuity of policy and work. But prior to this Dr. Tatham had initiated work in connexion with the registration of disease with which his name will perhaps be longest remembered. Following on earlier attempts by the Metropolitan Association of Health Officers in 1857, Dr. Arthur Ransome and the Sanitary Association of Manchester and Salford in 1860 organised a system of registration of sickness for these towns which appears to have been fairly complete, and which was not finally abandoned until the appearance 25 years afterwards of the compulsory notification of infectious diseases. Later it became realised that although preventive medicine is not confined to action against communicable diseases, prompt information respecting these is the urgent desideratum; and so town after town, from 1877 onwards, obtained local powers from Parliament making compulsory the notification of each case of the chief infectious diseases to the local medical officer of health. Then, and not until then, could it be said that the health officer was, in respect of many diseases, doing more than following slow-footed in the wake of disease. But disease does not confine itself to municipal or other local boundaries. The development of the complete possibilities of these returns of infectious diseases necessitated collateral information as to the amount and nature of the infectious diseases prevalent in neighbouring districts and in the rest of the country, or even in other countries. Dr. Tatham early recognised this defect and at the beginning of 1888, while still medical officer of health of Salford, he made a private arrangement with the medical officers of health of 32 other notification towns, by which he should receive from them weekly returns of the cases notified in each town. These were tabulated by him, and then circulated confidentially among the contributing medical officers early in the succeeding week. This was one of the many occasions in which private enterprise has experimented in pioneer work until official inertia can be overcome and the work can then be done on a national scale. The practicability and the utility of this voluntary inter-notification having been fully established, many of the local authorities concerned petitioned the Local Government Board to take the matter in hand as a "going concern"; and in 1889 the Board undertook this task. It may be added that this official work was made complete for the whole country by an Order of the Local Government Board in 1910, which made it the duty of every medical officer of health to forward the necessary returns weekly, which are printed for all areas and circulated later in the week. There have been more recent developments of the same policy which cannot be stated here, but to Dr. Tatham belongs the credit of initiating a most important development of intelligence work.

The best of Dr. Tatham's work in the General Register Office is embodied in the two letters to the Registrar-General summarising the vital experience of the country during the two decades 1881–90 and 1891–1900. They are indispensable to the English student of vital statistics; and a modestly expressed hope in the first of these that "these volumes may be regarded as a not unworthy contribution to the series of supplementary reports of which the first and second were written by Dr. Farr himself and the third was from the pen of my eminent predecessor. Dr. William Ogle," was realised in the event. Part I. of the first of these reports dealt with mortality in general and gave the life-table experience, while Part II. dealt chiefly with occupational mortality. In the corresponding supplement for 1891–1900 Dr. Tatham had the advantage of dealing with corrected or standardised death-rates in which there had been eliminated the disturbing influence of accidental variations in the proportion of the two sexes and of persons at different ages. In his life-tables he was able to show the steady improvement in vitality during the course of civil registration in this country, and to display the age-incidence of this improvement.

Tatham was cautious in judgment, and stated his conclusions with clearness and brevity. In personal relationships he was courteous and helpful, and many medical officers of health have cause to remember his guidance and help with gratitude. The record of his work remains, and deserves to stand as a proof of the value of vital statistics in their intimate affinity with the progress of preventive and curative medicine.

In addition to the official literary work mentioned, Tatham was the author of the article on medical statistics in Allbutt and Rolleston's "System," while he was also a frequent contributor to these columns on the same subject. He was the chairman of the Statistical Committee of the Imperial Cancer Research Fund, a member of the Privy Council Committee on Physical Deterioration, a past President of the Epidemiological Society, and had held examinerships in the Universities of Cambridge and Wales.

JOHN BENJAMIN HELLIER, M.D. LOND.,

CONSULTING OBSTETRIC PHYSICIAN, LEEDS GENERAL INFIRMARY.

Dr. J. B. Hellier, Emeritus Professor of Obstetrics in the University of Leeds, died at the age of 71 at his home in Leeds on Nov. 8th after a short illness. Dr. Hellier was a student of Leeds, and spent his whole professional life in that city. He qualified M.R.C.S. Eng. in 1875, and soon after his graduation the following year at London University, where he took first-class honours in medicine and was awarded the gold medal in obstetrics, he became associated with the Leeds school as one of its teachers, acting for some time as demonstrator of anatomy. In 1878 he obtained the M.D. Lond. He was then appointed lecturer on materia medica, and though by this time he had made up his mind to devote himself to obstetrics and gynæcology, he was active in the duties of the post and founded the museum in connexion with that subject. He was for a good many years in general practice, and it was not until he became associated with the Women and Children's Hospital that it became clear to all that he was destined to fill an important place as a consultant in this department of medicine and surgery. From being lecturer in gynæcology he was promoted to the chair of obstetrics, which he held till the year 1918. In 1899, on the resignation of Dr. James Braithwaite, he was appointed to the department of obstetrics and gynæcology at the General Infirmary. For many years, therefore, Dr. Hellier had great opportunities of serving his old school, and the school has never had a more loyal and trustworthy officer. He was an impressive and interesting lecturer, and devoted much care to the preparation of his lectures, feeling as he did that the value of lectures was frequently underestimated from a lack of proper attention to this. In harmony with the rules of the two institutions he resigned the chair of obstetrics in 1919 and the honorary post of gynæcologist at the infirmary in 1918. The University at once showed its appreciation of his services by conferring on him the title of Emeritus Professor. Automatically he became consulting gynæcologist at the infirmary, with the right to use six beds. Thus, as is and has been for many years at Leeds the happy custom, he was able to carry on his extensive consulting practice without losing touch with the infirmary. Some few years ago his health began to fail, and he made a voluntary and gradual retirement. He was an outstanding figure in the medical life of Leeds, and his long association with the school, both as teacher and valued adviser on questions of policy, was an important factor in its successful development.

Prof. E. O. Croft sends the following appreciation: "As a colleague of the late Dr. J. B. Hellier of some 35 years' standing, it is fitting that I should express, however inadequately, some note of appreciation of the character of one whom we, at the University of Leeds, shall all miss very sincerely. When Chas. J. Wright was professor of obstetrics, I was demonstrator of midwifery, and Hellier shortly after, in 1889, became lecturer in gynæcology and gynæcologist to the Hospital for Women, where he and I worked together for some years until he joined the infirmary staff. At the medical school, the University, and hospitals we were continuously associated and did our last day's work together as recently as last month as co-examiners for the Central Midwives Board. On that occasion it was obviously only his indomitable courage that carried him through, and we realised he could do no more. He and I on various occasions were associated in carrying out necessary changes and developments in hospital and teaching affairs, and I think no one can realise more than I the high-minded and unselfish attitude he took in all such matters. Whatever differences of opinion might have existed Hellier was always the courteous gentleman, who never allowed any personalities to arise, and whether his views and suggestions availed or otherwise he remained the same kindly friend—a true sportsman—ready to try again. Hellier had a somewhat abrupt manner in conversation, but it was never tinged with any trace of unkindliness. He was a man of considerable culture and devoted to literature. One of his greatest and most valuable assets was a very keen and deep sense of humour: we can all remember many fascinating and interesting addresses and speeches with which he entertained us at University and medical gatherings. Hellier as a hospital colleague, teacher, and friend, and even more as a man of high character, exercised a great influence for good among all who knew him."

Dr. Hellier was a Fellow of the Glasgow Obstetrical Society, and was twice elected as President of the North of England Obstetric and Gynæcological Society. He made some sound contributions to medical literature in his own subject. In 1908 the second edition of his useful introductory manual on "Infancy and Infant Rearing" was published. This book was designed for a wide audience of pupil midwives, health lecturers, students, and practitioners, and well fulfilled its object. He contributed the article on Fistulæ in the Female Genital Tracts to Eden and Lockyer's "System of Gynæcology," and to Latham and English's "System of Treatment," the chapter on Diseases of the Vulva. In addition, his papers were frequently published in THE LANCET and various medical journals.

He has left a widow, daughter of Mr. H. B. Harrison of Manchester, two sons and two daughters, one of whom is in the medical profession. To them we extend our sympathies.

GEORGE ERNEST HASLIP, M.D. BRUX., M.R.C.S. ENG., D.P.H.

Dr. Haslip's death on Nov. 12th was for him a happy release from long and painful illness, but a severe loss to a wide circle of medical interests Born in 1864, he studied at the London Hospital, taking his conjoint qualification in 1887, and supplementing it with the Brussels M.D. two years later. After filling a series of house appointments at his hospital, he began his practice in London, where he was brought closely in contact with business men, and became himself a competent man of affairs. He was elected a member of the Consultative Committee of the Ministry of Health, and took an active part in all medico-political matters in the metropolitan counties. His connexion with the British Medical Association included all the active years of his life; he devoted time, energy, and native wit to its welfare, ultimately becoming treasurer. Of this phase of his life Mr. N. Bishop Harman writes:—

"Of George Ernest Haslip it may be said that there were few men who made so many friends and so few enemies. It is even doubtful if he made any enemies at all, but of friends that they were many is certain. Yet there are few men who have played a wider part in the medical affairs of his time. For eight years he filled one of the highest offices in the British Medical Association, the treasurership, and his tenure of office covered most of the difficult period of the war and the years of reconstruction. In the discharge of the duties of his office he showed an easy vigilance which was invaluable in the administration of the affairs of the Association, especially when there came one of those inevitable changes within the permanent staff of the head office, which might under less skilful guidance have made the wheels run heavily, but his care forestalled such risks. In finance he showed both knowledge and judgment. His work as treasurer did not diminish his attention to local medical matters, and it is common knowledge that his work in the Metropolitan Counties Branch and in his own division was unflagging.

"Haslip held strong views on professional affairs. Sometimes others of us considered them somewhat different from our 'doxy. He never hesitated to express his views, sometimes with a vigour that might have been wounding. Yet he never wounded. He had a way with him—so kindly, so single-minded, and so impersonal, that the keenest dissension in debate left no soreness, so that it came to pass on many such occasions apparently sharp antagonists would be seen strolling home with him in some happy discussion or converse that smoothed out any ripple of stress. As a medical practitioner he was unremitting in the care of his patients. To meet him in consultation was to discover that of all his many activities the care of his patients came first. To this end he spared no pains to keep himself abreast of the best practice he could find.

"The fibre of a man's character is revealed in his reaction to conditions of grave strain. Haslip's long and exhausting illness, with the constant suffering it entailed, was borne with a fortitude that was exemplary and not to be forgotten. Those who saw him then, when the signs of physical weakness were manifest, were the better for the lesson of his uncomplaining endurance. As one who had the honour to be his colleague in many a venture in Association affairs, I can give thanks for his work and for his example."

Dr. Haslip took an early interest in the Medical Insurance Agency, and was for the last year or two of his life chairman of the committee of management. The first part of the funeral service was held at St. Martin's-in-the-Fields on Nov. 14th; the second part at Walton-on-the-Hill, where he had long had a country house.

CHARLES FREDERICK ARROWSMITH MOSS, M.D., C.M. EDIN.

Dr. C. F. A. Moss, who died recently in Madagascar at the age of 59, devoted his life to medical mission work in that island, under the London Missionary Society and the Friends' Foreign Mission Association. He was the son of the Rev. C. F. Moss, also a missionary of the former society. Dr. Moss was born at Gosport in 1865. After studying medicine in Edinburgh University, where he graduated as M.B., C.M. in 1888, he went to Madagascar in the following year, and obtained his first appointment with the Friends' Foreign Mission Association, at the United Hospital at Tananarivo. He was in the hospital when it was bombarded and taken by the French in 1895. He married, in 1897, Rose Mary Pearse, daughter of the Rev. Joseph Pearse, the pioneer missionary of the L.M.S. to Madagascar, whose life he wrote 11 years ago. In 1898 he gained the M.D. Edin. with commendation. In 1913 Dr. Moss was placed on the retired list of the Friends' Foreign Mission Association, but he continued as a medical missionary at Tananarivo until 1920, when he was appointed by the London Missionary Society to a medical post in Imerimandroso in the Antsihanka Province, where he died. He visited England in the early part of last year, and was expecting to return home for good in two years' time. His widow is at present in this country.

JOHN LAWRENCE RENTOUL, M.B., CH.B. EDIN.

MUCH regret is felt in Belfast and the North of Ireland at the recent death, in early middle age, of Dr. J. L. Rentoul. A son of the late Rev. James Rentoul, of Dromore, Co. Down, Dr. Rentoul graduated as M.B. Edin. in 1900 and began practice in Lisburn, where he established a large clientèle. He volunteered for war service and obtained a commission in the R.A.M.C. He had given much attention to bacteriology, and was appointed bacteriologist to the hospital ship *Britannic*, which was torpedoed in the Ægean Sea in 1916. Dr. Rentoul was rescued, and subsequently had charge of a field laboratory in France. After demobilisation he settled in Belfast and practised as a clinical bacteriologist. He was an active member of the Ulster Medical Society and contributed frequently to its proceedings. He was specially interested in tuberculosis, and was engaged in experiments with a new serum at the time of his last illness. He was very popular with his friends and colleagues, and to his widow we extend our sympathies.

Medical News.

UNIVERSITY OF GLASGOW.—At the graduation ceremonial held on Nov. 15th the following degrees were conferred :—

M.D.—Katherine O. Robertson (with commendation), Arthur Anderson, and Alice Cox (in absentia).
M.B., Ch.B.—Isdale Robertson Taylor.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary meeting of the Council of the College on Nov. 13th, Sir John Bland-Sutton, the President, in the chair, the Secretary reported the death or Oct. 11th, at the age of 77, of Mr. John Hammond Morgan, M.V.O., F.R.C.S., past member of the Council, and a vote of condolence with his family was unanimously passed.—Mr. Walter G. Spencer was reappointed a member of the Committee of Management of the Conjoint Examining Board.—It was agreed that a reception be held at the College from 4 to 6 P.M. on Wednesday, June 3rd next, for members attending the Interstate Post-graduate Assembly of American Surgeons.—The President reported that Mr. H. S. Pendlebury's term of office on the Court of Examiners would expire on Dec. 10th next, and that the vacancy thus occasioned would be filled up at the ordinary Council on Dec. 11th. Mr. Pendlebury is eligible for re-election.

ROYAL NORTHERN GROUP OF HOSPITALS.—Prince Arthur of Connaught presided over a festival dinner on Nov. 13th at the Hotel Cecil in aid of the Royal Northern Group of Hospitals. In proposing the toast of success to the Northern Hospital, Prince Arthur referred to the greater financial difficulties which confront hospitals in the outer circle of London compared with those of the inner circle. The Royal Northern Hospital with its 387 beds served a population of over one million, and during last year 4030 in-patients were treated and the out-patient attendance numbered nearly 170,000. He appealed to all present to help to clear off the embarrassing debt of £65,000 and put the hospital in a satisfactory financial condition. The Rev. Basil Bourchier supported this appeal in an eloquent speech, in which he spoke of the charitable service this hospital is able to render to the sick and injured of the populous district in which it is situated. Lord Northampton, chairman of the hospital, deplored the fact that the board had been compelled to close 60 beds, with the sad consequence that 1000 patients annually had to be refused admission. The hospital, he declared, is well supported by the residents of Northern London, but wealthy people in the West End, not knowing of the needs of their poorer neighbours, do not give it the support it deserves. He read a letter from Sir Howell Williams offering £20,000 to the hospital in memory of his son Captain Ifor Williams. This generous gift was made on condition that a similar amount should be raised by Jan. 1st, 1925, which should go to the reduction of the debt. In the memorial ward, to the endowment of which Sir Howell Williams has directed his bequest, he wishes that the greater part of the accommodation should be for the people of Islington, and that about six beds should be available for patients nominated by the Welsh community of London. Lord Northampton announced also the receipt of an offer of £3200 for the foundation of a maternity department, provided £5000 were received before the end of the year for the endowment of the department. Sir Arthur Stanley, Mr. H. J. Tennant, Sir Philip Sassoon, and Mr. Malcolm Donaldson also spoke. The donations received at the dinner amounted to over £6650.

A Gift to the Harveian Society of London.—At a meeting of this society held on Nov. 13th at the PaddingtonTown Hall, the President announced the gift by Mr. G. Buckston Browne of £1000 in memory of his only son, Lieut.-Colonel Buckston Browne, D.S.O., who was lost in the war, for the purpose of establishing a Buckston Browne prize. The interest will be used, biennially, after certain deductions for expenses ; the regulations for its award will be submitted to the general meeting in January next. A report of the discussion which took place at this meeting appears on another page.

Medical Candidates for Parliament. — The results of the poll for the constituency of the combined Scottish Universities, which returns three Members, were declared on Nov. 13th. The medical candidate, Sir George A. Berry, was again returned, as was also Sir Henry Craik, who, though not a member of the medical profession, has its interests at heart. The figures were : (1) Cons., 7189 (Sir Henry Craik) ; (2) L., 5010 ; (3) Cons., 3781 (Sir George Berry) ; (4) Lab., 1638. The total number of medical men now entitled to sit in the House of Commons is 12. A list of the other 11 was given in The Lancet of Nov. 8th, p. 987.

Australian and New Zealand Medical Association in England.—The half-yearly dinner of the Association will be held at the Trocadero Restaurant, Piccadilly, on Friday, Dec. 12th, at 7.30 for 8 p.m. Further particulars may be obtained from Dr. E. T. C. Milligan and Dr. H. Bedford Russell, the hon. secretaries, at 86, Harley-street, W. 1.

Medicine and Missions.—At a meeting on behalf of medical missions in connexion with the Society for the Propagation of the Gospel in Foreign Parts, held in the Central Hall, Westminster, on Nov. 12th, Sir Leonard Rogers, who was in the chair, spoke of the good work being done by medical missionaries of various denominations throughout the world, and especially of what he had seen himself. He paid a tribute to valued personal friends among them who had died in harness, such as Dr. Pennell on the North-West Frontier of India ; Dr. Hearn, of the Dublin University Mission in Chota Nagpur. He referred to the large number of patients treated by the missions in connexion with the society in various parts of India, in North China, and in South Africa, and of the importance of the endeavours made by the society to pay its workers a living wage, and to have at least two doctors at every hospital. He pointed out the need for many more workers, especially men. In conclusion, he referred to the new opening for work in all mission hospitals in the tropics for the treatment of leprosy, which could now be carried out more effectively than ever before, especially in its earlier stages. Nearly every case could be relieved of bad symptoms and of infectivity. The result was that large numbers were coming forward for early treatment instead of hiding the disease until it was too late. It had been found that a considerable number of these earlier cases were not infectious, and it was quite unnecessary to isolate them ; hence they could be treated as out-patients in all mission hospitals. Sir Leonard Rogers reiterated his belief that leprosy could be reduced to a negligible quantity.

Advisory Committee on the Welfare of the Blind.—In view of the development in the work among the blind owing to the operation of the Blind Persons Act, 1920, the Minister of Health has reappointed the Advisory Committee on the Welfare of the Blind for a further period of office. The committee has been constituted so as to afford representation to the local authorities concerned with the working of the Act and to voluntary agencies for the blind, as well as to organised blind workers. The following have been appointed members of the committee : Mr. G. H. Roberts (chairman), Mr. P. M. Evans, LL.D. (vice-chairman), Miss W. Bramhall, Alderman W. J. Burgess, J.P., Mr. J. J. Burton, Dr. J. J. Butterworth, D.P.H., Sir Coles Child, Bart., Mr. Herbert Davey, Canon G. H. P. Glossop, Mr. James Graham, Mr. Thomas Holt, Mr. Arthur L. Lowe, Dr. Robert A. Lyster, D.P.H., Mr. G. F. Mowatt, J.P., Mrs. Wilton Phipps, J.P., Dr. H. A. Powell, Rev. P. S. G. Propert, Mr. Ben Purse, and Mr. W. H. Tate, J.P. A representative of the National League of the Blind and a further representative of the local authorities will be appointed later. The committee will advise the Minister on matters relating to the care and supervision of the blind, including any question that may be specially referred to them by the Minister. Mr. F. M. Chapman, of the Ministry of Health, will act as secretary.

Glasgow University Club of London.—A dinner will be held at the Trocadero Restaurant, Piccadilly, on Thursday, Dec. 11th, at 7.30 p.m., Mr. D. M. Cowan, M.P., in the chair. Any Glasgow University men who, though not members of the Club, desire to attend are requested to communicate with the hon. secretaries, 1, Harley-place, N.W. 1.

St. Vincent's Hospital, Dublin.—On Nov. 11th, in the presence of a large company, the Archbishop of Dublin opened the new out-patient department of this hospital. It is some 90 years, our Dublin Correspondent writes, since Mary Aikenhead, the foundress and head of the Sisters of Charity, founded St.Vincent's Hospital, and it has ever since remained under the care of the Sisters of Charity. These ladies have spared no pains to keep the hospital in touch with modern developments of medicine and surgery, and while always fortunate in their selection of a staff, have made sure that their staff should be given adequate equipment for their work. The new department opened last week contains sections for medicine, surgery, ophthalmology, otology and laryngology, gynæcology, dentistry, radiology, pharmacy, and pathology. The cost of the building was some £37,000, the sum being available from a bequest of the late Mr. Charles Lawler. On Nov. 15th the annual dinner of the staff and past students of St. Vincent's Hospital was held in the Shelbourne Hotel, with Mr. J. S. McArdle, senior surgeon, presiding. A very large number of past students and guests were present, among the latter being His Excellency the Governor-General, the President of the Royal College of Physicians, the President of the Royal College of Surgeons. the Chief Justice, and the President of University College, The absence, through illness, of Dr. M. E. Cox, senior physician to the hospital, was regretted by all.

Edinburgh University Club of London.—The 203rd dinner of the club was held on Nov. 12th at the Connaught Rooms, with Sir Harold Stiles in the chair. Some 200 members and their guests were present. The Chairman, who began in reminiscent vein, spoke of the medical work of his father and his grandfather, and recalled the parental warning he had received when commencing his student career in Edinburgh on the evils of billiard-playing. The Edinburgh Medical School, he said, was supreme at the end of the eighteenth and in the early part of the nineteenth centuries ; it was two Edinburgh medical graduates who founded the first school of medicine in America, at Philadelphia, and the first in Canada, McGill school, was started by four Edinburgh men. It was Charles Bell, he said, who infused the scientific spirit of surgery into London. Great progress had been made in Edinburgh since the middle of last century in two lines, first in abdominal surgery, and second in orthopædic surgery. But more money was wanted, and the speaker hoped that by the recent formation of an alumni society funds for further development would be forthcoming. The value of alumni associations, such as exist in America, had not been hitherto realised. The future of every nation depended on the development of science. Dr. H. J. F. Simson proposed the toast of the chairman in a most entertaining speech. A pleasant programme of songs was rendered in the course of the evening by Mr. W. A. Peterkin.

University of Edinburgh Lodge : Installation and Banquet.—The M.W. the Pro. Grand Master, the Right Hon. Lord Ampthill, was present on Nov. 14th at the Installation Meeting of the University of Edinburgh Lodge, No. 2974, which celebrated the twenty-first anniversary of the Lodge. Some 150 Brethren, including a considerable number of Grand Officers, and many distinguished in the craft and medical profession, attended at Freemason's Hall in the afternoon, when W. Bro. M. Burrow Ray, D.S.O., M.D., opened the Lodge. W. Bro. Robert Cathcart Bruce, P.G.D., and W. Bro. Frederick J. McCann, P.P.G.W., Kent, were elected honorary members of the Lodge. The M.W. Pro. Grand Master Lord Ampthill, assisted by the retiring Master, installed W. Bro. D. C. L. Fitzwilliams, C.M.G., M.D., M.Ch., P.Dep.G.D.C., as Master for the ensuing year, and at a later stage the Pro. Grand Master delivered the addresses. The W.M. invested the following officers : I.P.M., W. Bro. M. Burrow Ray, D.S.O. ; Bro. R. H. Martin, S.W. ; Bro. Alastiar MacGregor, J.W. ; W. Bro. W. E. Porter, Treasurer ; W. Bro. G. C. Cathcart, Secretary ; W. Bro. Hugh Phillips, D.C. ; Bro. Moriarty, S.D. ; Bro. MacCormac, C.B.E., J.D. ; W. Bro. McCrae Aitken, A.D.C. ; W. Bro. F. J. McCann, Almoner ; Bro. H. C. Nixon, Organist ; W. Bro. William Wilson, Asst. Secretary ; W. Bro. H. Critchley, I.G. Stewards : W. Bro. G. A. Gordon, Bro. P. Leighton, Bro. Kerr Simpson ; and Bro. P. McLean, Tyler. A banquet was held in the evening at the Imperial Restaurant, Regent-street, W., when Lord Ampthill, responding for the "Grand Officers," alluded to the strength of Freemasonry amongst the medical profession, a profession devoted (he said) to the welfare of mankind and thus closely allied to the principles of the craft.

University of London: *University College.*—Of the 15 entrance scholarships and exhibitions available for award to students entering this College in October, 1925, three are tenable in the Faculty of Medical Sciences only and three are tenable in any of the five College faculties. Most of the scholarships and exhibitions are of the value of £40 a year for three years, but the value of any scholarship or exhibition may be increased by the grant of a supplementary bursary if the circumstances of the scholar or exhibitioner make such a grant necessary. The Bucknill scholarship (medical) is of the value of 160 guineas; the two medical exhibitions are of the value of 55 guineas each.

University College Hospital Medical Society. The annual dinner of this society will be held on Thursday, Dec. 11th, at Gatti's Restaurant, Strand, W.C. Tickets, 10*s.*, may be obtained from Mr. I. H. K. Stevens, hon. secretary.

Dr. W. B. Coulter (Senior Medical Officer) has been appointed an Official Member of the Executive Council of the Presidency of Montserrat.

Lectures on Psychological Medicine.—The eighth course of lectures at the Maudsley Hospital, Denmark Hill, London, S.E., for the Diploma of Psychological Medicine will commence early in January. The lecturers will be Sir Frederick Mott, Dr. F. Golla, and Dr. Henry Devine.

Irish Medical Schools and Graduates Association.—The autumn gathering and dinner of this association will take place at Pagani's Restaurant, Great Portland-street, London, W., on Nov. 25th at 7.30 P.M. The chair will be occupied by the President, Dr. William J. Corbett. Tickets (10*s.*) may be obtained from Dr. Holmes Meyrick, 48, Ennismore-gardens, London, S.W. 7.

The Parliamentary Secretary to the Ministry of Health, Sir H. Kingsley Wood, M.P., has appointed Mr. E. S. Hill to be his private secretary; the Permanent Secretary to the Ministry of Health, Sir Arthur Robinson, has appointed Mr. R. Stanton to be his private secretary; and the Second Secretary to the Ministry of Health, Sir A. V. Symonds, has appointed Mr. T. H. Sheepshanks to be his private secretary.

Cremation in Manchester.—At the thirty-fourth annual meeting of the Manchester Crematorium, Limited, it was stated that the number of cremations in the last five years had been as follows: 219 in 1920, 211 in 1921, 208 in 1922, 222 in 1923, 234 in 1924. Since the opening of the crematorium in 1892 the total number of cremations has been 4080. The total number in Great Britain for the year ended with August last was 2349, against 1923 in the preceding year.

Rontgen Society.—A meeting will be held on Dec. 2nd, at 8.15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London W., when Prof. J. A. Crowther will read a paper on Some Experiments with Induction Coils, and, jointly with Mr. R. J. Stephenson, a paper on the Effect of Capacity on the Induction Coil. The Council has decided to present the "Rontgen Award for the Session 1923–24" to Mr. L. H. Clark, M.Sc., Physics Department, Middlesex Hospital, who contributed the following papers to the society during the session: (1) A Clinical X Ray Balance Radiometer, (2) On the Measurement of X Ray Intensity.

The late Dr. R. N. West.—General regret has been caused in the district of Manchester in which he practised, Chorlton-cum-Hardy, by the death from pneumonia on Nov 1st of Robert Newberry West, a son of the late Rev. J. R. O. West, Canon of Manchester. Dr. West studied at Owens College and graduated M.B. and Ch.B. at the University of Manchester in 1901. He served for four years on active service in France as a captain in the R.A.M.C. He was district medical officer and public vaccinator in his town to the Chorlton Union, and was prominently identified with the St. John's Ambulance movement. He leaves a widow and one child.

Hospital for Epilepsy and Paralysis.—The committee of management of the Hospital for Epilepsy and Paralysis, Maida Vale, London, W., has placed the facilities of the pathological, X ray, and Swedish remedial departments at the disposal of medical practitioners for the benefit of patients who are not in a position to pay the usual charges. The pathologist is Dr. Douglas McAlpine, M.R.C.P., an honorary assistant physician of the Hospital who is acting as honorary pathologist until the use of the laboratory justifies the appointment of a full time paid pathologist. The biochemist is Mr. Hugh Nichol, M.Sc., who until the work demands it will also do the bacteriology. A schedule of charges has been issued in which, for instance, the Wassermann test is 15*s.*, a section of tumour with report or a blood-sugar estimation 10*s.* 6*d.*, X ray of bismuth meal £5 5*s.*, supervised Swedish exercise 5*s.* for half an hour. In accordance with the principles of the hospital these payments will be voluntary and may be reduced on the recommendation of a practitioner to meet the needs of individual patients. All communications should be addressed to the secretary of the hospital.

Donations and Bequests.—Mr. William Byrom, cotton spinner, late of Heaton Mersey, who left £32,569 after the payment of small legacies, gave the whole of his estate to charitable institutions, including £720 to the National Children's Home and Orphanage founded by the late Dr. Stephenson; £480 each to Dr. Barnardo's Children's Home, United Kingdom Alliance, Victoria University, Manchester; Manchester and Salford Sunday Fund, and Manchester Royal Infirmary; and £240 to Mauldeth Hospital for Incurables.—Mr. John Drake, of Halifax, who left £3148 after personal bequests, left the residue of the property to the Society for the Home Teaching and Assistance of the Halifax Blind.—Mr. William Stones, Manchester, mineral water manufacturer, left estate of the gross value of £172,375. After the fulfilment of legacies and failing certain trusts, he left the ultimate residue of his property as to—three-tenths to the Manchester Royal Infirmary and Dispensary; one-fifth to St. Mary's Hospital, Manchester; and one-fifth to the Manchester Children's Hospital; one-tenth to the Manchester Eye Hospital; one-tenth to the Northern Counties Hospital for Incurables, Mauldeth; one-tenth between the Christie Hospital and the Manchester and Salford Hospital for Skin Diseases.—The Royal Manchester Children's Hospital has received £1000 from H. Pownall to endow "The Anne Pownall Cot" and £740 from the Manchester Corporation.—On Oct. 18th the thanks of the Senate of the University of Cambridge were accorded to Mr. Ernest H. Gates, who has provided the necessary sum to enable the University to accept the offer made by the Trustees of the Rockefeller Foundation for the endowment of the School of Pathology; and to the Rockefeller Trustees for the endowment of the School of Pathology.—Sir George Wills has given £60,000 for the purpose of erecting a new nurses' home and a new out-patient and casualty department at the Bristol General Hospital.—Two anonymous donors have given £15,000 to the Northampton General Hospital for additional apparatus and equipment for the electrical department, and the chairman of the institution, Mr. R. B. Loder, has made a donation of £300.—Mr. George Tilling, solicitor, Streatham, left £200 each to the Royal Microscopical Society, the Quekett Microscopical Club, Guy's Hospital, Dr. Barnardo's Homes, the British Red Cross Society.—Mr. Alfred Hargreaves, of Woodlands, near Keighley, left £250 each to the Keighley and District Victoria Hospital and the Skipton and District Hospital, payable on the death of his wife.—Mr. Robert Hesilrige Buckby, solicitor, Syston, gave on the death of his wife £100 each—amongst other institutions—to the Leicester Institution for the Blind, the Leicester Royal Infirmary, the Middlesex Cancer Hospital, the Institution for the Deaf and Dumb, Derby, the London Female Guardian Society, and the Ragged School Union.—Sir Samuel Turner, an ex-mayor of Rochdale and asbestos manufacturer, besides other charitable bequests, left £4000 to the National Children's Home and Orphanage, with the request that it be used for the erection of an additional home for orphans; £3000 to the Rochdale Infirmary for the endowment fund; £1000 to the Rochdale Nursing Association for the endowment fund; £1000 to the Rochdale Crippled Children's Union for the endowment fund; and £500 to the Rochdale and District Society for Visiting and Instructing the Blind, for the endowment fund.—Mr. Richard Baron, of Lower Darwen, bequeathed £500 each to the Blackburn Infirmary and to Blackburn Ragged School.—Dame Florence Emily Fermor-Hesketh, Roehampton, left £40,000 for such charitable institutions and objects in California as her executors may think fit and £10,000 for similar purposes in England.—Towards the Lord Mayor's Hospital Fund in Leeds the Leeds National Health Insurance Committee has contributed £1000 and the town of Pudsey £2641, thereby establishing a record for itself.—Alderman William Henry Churton, solicitor, of Chester, left £200 to the Chester Royal Infirmary.—Mrs. Millicent Salting, Berkeley-square, W., left £2000 each to the Middlesex Hospital, St. Mary's Hospital, Paddington, and the Cancer Hospital, Fulham-road, S.W.; £1000 each to the Brompton Hospital for Consumption and King's College Hospital.—Miss Annie Webster, Headingley, Leeds, left £1000 to the Leeds General Infirmary to endow an "Annie Webster Bed."—Dame Edith Annie Armstrong, of Pangbourne, Berks, left £1050 to the Royal Northern Hospital, Holloway-road, N., "for a Jack Armstrong bed in proud and dear memory of my son who fell gloriously for King and Country, Jan. 25th, 1915."—The Chelsea Hospital for Women has received an Armistice Day donation of £200.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 24th.

ODONTOLOGY: at 8 P.M.
Paper:
Mr. G. J. Goldie and Prof. Collingwood: A Note on Protagulin in Hæmorrhage after Extraction.

Tuesday, Nov. 25th.

MEDICINE.
No meeting of the Section of Medicine will be held in November.

Wednesday, Nov. 26th.

COMPARATIVE MEDICINE: at 5 P.M.
Paper:
Mr. Leslie Pugh: Puerperal Septicæmia in Cattle.
A discussion will follow, opened by Prof. Louise McIlroy.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.
Members of this Section are specially invited to attend the above meeting.

ANNUAL DINNER OF THE SOCIETY: Hotel Victoria, 7.30 for 8 P.M.

Thursday, Nov. 27th.

BALNEOLOGY AND CLIMATOLOGY: at 4.30 P.M.
Presidential Address:
Dr. W. Edgecombe: The Principles of Spa Treatment in Great Britain.
To be followed by a discussion.

EPIDEMIOLOGY AND STATE MEDICINE: at 5.30 P.M.
Paper:
Dr. T. Carnwath: A Brief Survey of Public Health Organisations in the United States of America.

UROLOGY: at 8.30 P.M.
Clinical and Pathological Evening:
Members wishing to show cases or specimens are requested to notify the Hon. Secretary (Mr. S. G. MacDonald, 51, Queen Anne-street, W.) without delay.

Friday, Nov. 28th.

STUDY OF DISEASE IN CHILDREN: at 4.45 P.M.
Clinical meeting at St. Thomas's Hospital, S.E.

BALNEOLOGY AND CLIMATOLOGY.
It is hoped to arrange for a visit to some orthopædic institution. Particulars to be announced later.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
Monday, Nov. 24th.—8.30 P.M., Discussion on the Treatment of Senile Gangrene, to be introduced by Sir Anthony Bowlby, Bart., K.C.B., followed by Dr. Harold A. Des Vœux, Mr. Sampson Handley, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.
Monday, Nov. 24th, to Saturday, Nov. 29th.—West Lecture Hall, Royal Society of Medicine, 1, Wimpole-street, W. Lecture arranged by the Fellowship of Medicine, and open to all members of the profession. At 5.30 P.M., Monday, the 24th inst., Mr. Victor Bonney: Cancer of the Uterus.—Chelsea Hospital for Women, Arthur-street, S.W. Special Course in Gynæcology, consisting of lectures, demonstrations, and operations.—Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E. Special Course in Medicine, Surgery, and Gynæcology. Lecture-Demonstrations in the wards and out-patient departments.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith.
Monday, Nov. 24th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
Tuesday.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
Wednesday.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept. 4.30 P.M., Dr. Trevor Davies: Gynæcological Demonstration.
Thursday.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simson: Gynæcological Wards. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
Friday.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.
Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Tuesday, Nov. 25th.—4.30 P.M., Mr. T. H. C. Benians: Blood-Sugar and Blood-Urea in Diagnosis and Treatment.
Friday.—4.30 P.M., Mr. H. W. Carson: The Methodical Investigation of Stomach Cases.
Daily: Medical and Surgical Clinics, Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
Thursday, Nov. 27th.—4 P.M., Mr. Tyrrell Gray: Acute Peritonitis.

ROYAL DENTAL HOSPITAL OF LONDON POST-GRADUATE LECTURES.
Wednesday, Nov. 26th.—5 P.M., Mr. T. B. Vaile: Some Points in Anæsthesia for Dental Cases.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
Tuesday, Nov. 25th.—5 P.M., Dr. A. M. H. Gray: Bacterial Affections.
Thursday.—5 P.M., Dr. Haldin Davis: Seborrhœa. Seborrhœic Dermatitis.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
Monday, Nov. 24th.—(At the Children's Hospital.) Mr. Dun: Surgical Cases.
Tuesday.—(At the Southern Hospital.) Mr. Leyland Robinson: The Disorders of the Menopause.
Wednesday.—(At the Northern Hospital.) Dr. Pemberton: Arthritis Deformities.
Thursday.—(At the Stanley Hospital): Miss Ivens: The Diagnosis and Treatment of Uterine Fibroids.
Friday.—(At the Royal Infirmary.) Mr. Kelly: Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
Tuesday, Nov. 25th.—4.15 P.M., Mr. P. R. Wrigley: The Place of Splenectomy in Surgery.
Friday.—4.15 P.M., Mr. A. H. Burgess: Some Points in the Surgery of the Biliary Tract.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)
Tuesday, Nov. 25th.—(At the Royal Infirmary.) Dr. Yates: Pathology as a Basis of Treatment in Some Common Diseases.
Friday.—(At the Royal Hospital.) Dr. P. Hay: Miners' Nystagmus.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.
Wednesday, Nov. 26th.—3.15 P.M. (at the Town Club, Swindon). Dr. O. C. M. Davis: Defective Dietary as a Cause of Children's Disorders.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.
(Course of Lectures on the Health of the Commonwealth.)
Wednesday, Nov. 26th.—4 P.M., Prof. Winifred Cullis: The Practice of Health.

ROYAL ANTHROPOLOGICAL INSTITUTE.
Tuesday, Nov. 25th.—8.30 P.M. (in the Lecture Room of the Royal Society, Burlington House, W.) Prof. Dr. R. Verneau: La Race de Neanderthal et la Race de Grimaldi: Leur Rôle dans l'Humanité. (Huxley Memorial Lecture.)

THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.
Tuesday, Nov. 25th.—4 P.M., Dr. Hynd: The Chemical Constitution of the Urine and Blood in Health and Disease.

CHADWICK PUBLIC LECTURES.
Wednesday, Nov. 26th.—5.15 P.M. (at the Medical Society's Rooms, 11, Chandos-street, W.). Dr. W. W. Feldman: Antenatal Physiology and Hygiene.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.
(At the Medical Society of London, 11, Chandos-street, W.)
Monday, Nov. 24th.—6 P.M., Sir Frederick Mott: Mind and Body.

Appointments.

Cooke, Robert Hunt, M.B., B.S. Lond., has been appointed Medical Registrar, Hospital for Epilepsy and Paralysis and Other Diseases of the Nervous System, Maida Vale.

Payne, Alfred Ernest, M.B. Lond., M.R.C.S., L.R.C.P. Lond., Honorary Radiologist, Leicester Royal Infirmary.

Surgeons under the Factory and Workshop Acts: Ness-Walker, J., M.R.C.S., L.R.C.P. Lond., Castleton; Bates, K. L., L.R.C.P. Lond., M.R.C.S., St. Albans; Richards, W. K. A., M.B., Ch.B. Bristol, Westbury; and Arthur, J., Wellingborough.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary, &c.—H.S. £200.

Barrow-in-Furness, North Lonsdale Hospital.—Two H.S.'s. Each £175.

Birmingham City Tuberculosis Dept.—Asst. M.O. £450.

Brighton, New Sussex Hospital for Women and Children.—Hon. Radiologist.
Bristol City and County of Education Dept.—Asst. Sch. M.O. £600.
Bristol General Hospital.—Hon. Clin. Assts.
Bristol Royal Hospital for Sick Children and Women.—Hon. P. to Out-patients.
City of London Maternity Hospital, City-road, E.C.—Res. M.O. at rate of £100.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Anæsthetist. £50.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Asst. S.
Exminster, Devon Mental Hospital.—Jun. A.M.O. £300.
Gordon Hospital, Vauxhall Bridge-road, S.W.—Res. H.S. at rate of £75.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P., and H.S. Also Cas. Med. O. and Cas. Surg. O. All at rate of £100.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. S.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each £50.
London Lock Hospital, 91, Dean-street, W.—Clin. Assts.
London Temperance Hospital, Hampstead-road, N.W.—R.M.O. at rate of £175.
Manchester, Eccles and Patricroft Hospital.—H.S. £200.
Manchester Hospital for Consumption, &c., Bowden, Cheshire.—R.M.O. £200.
Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill-road.—Sen. and Jun. H.S. £130 and £100 respectively.
Manchester Royal Infirmary.—Hon. Asst. Radiologist.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Asst. S. and Clin. Assts.
Ministry of Health, Whitehall, S.W.—M.O. £600 and bonus.
Oxford, Radcliffe Infirmary and County Hospital.—H.S. and Obstet. H.P. Each at rate of £120.
Park Royal Hospital, Acton Lane, W.—Res. Asst. M.O. £350, bonus, &c.
Poplar Hospital for Accidents, East India Dock-road, E.—Hon. Dent. S.
Prince of Wales's General Hospital, N.—Clin. Assts.
Reading, Royal Berkshire Hospital.—Hon. Asst. S.
Rotherham Hospital.—Hon. Radiologist.
Royal Army Medical Corps.—Commissions.
Royal Eye Hospital, St. George's-circus, S.E.—Jun. H.S. £100.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £150. Cas. O. £100. Asst. Cas. O., Obstet. Asst. £50. Obstet. H.S. H.P. and H.S. Also Surg. and Gynæcological Reg. £250.
Royal London Ophthalmic Hospital, City-road, E.C.—Pathologist and Curator. £200.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. at rate of £100.
Sheffield University.—Asst. Pathologist. £500.
Somerset County Council, Quantock Lodge Tuberculosis Sanatorium.—Res. Med. Supt. £739 12*s.*
Truro, Royal Cornwall Infirmary.—H.S. £170.
Virol Scholarship in Hæmatology. £200.
West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Asst. P., Laryngologist. Also Otologist.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Non.-Res. H.S. at rate of £150.
Windsor, King Edward VII. Hospital.—Jun. H.S. At rate of £100.

Births, Marriages, and Deaths.

BIRTHS.

PATTERSON.—On Nov. 8th, at Bedford, the wife of Surgeon-Commander T. C. Patterson, R.N., of a son.

TRAVERS.—On Nov. 13th, at Phillimore-gardens, W., the wife of Dr. Ernest Travers, of a son.

MARRIAGES.

RISIEN-RUSSELL—CLEMENT.—On Nov. 17th, in London, J. S. Risien-Russell, M.D., F.R.C.P., of Wimpole-street, W., to Ada Clement, daughter of the late Wilkinson Hartley, Esq., J.P., C.A., and Mrs. Wilkinson Hartley, J.P., of Carr Hall, Nelson, Lancashire.

DEATHS.

BURROWS.—On Nov. 13th, in a nursing home, Cambridge, Cresswell Burrows, M.A., B.Sc., M.D. Camb., M.R.C.S. Eng., L.R.C.P. Lond.

LEE.—On Nov. 17th, at West Drayton, Robert James Lee, M.B., M.D. Camb., aged 84.

LONG.—On Nov. 16th, at Micklegate, York, David Sanderson Long, M.D.

MATTHEWS.—On Nov. 13th, at Strathyre-avenue, Norbury, S.W., Dr. J. Sydney Matthews, M.R.C.S., L.R.C.P., L.M.S.S.A. Lond., of Cape Town and London.

PALEY.—On Nov. 12th, at Brunswick-place, Hove, Brighton, of heart failure following operation, Frederick John Paley, M.D., aged 65 years.

POWELL.—On Nov. 5th, accidentally drowned at sea, James Farquharson Powell, M.C., M.R.C.S., L.R.C.P., of Boscobel-road, St. Leonards-on-Sea.

TAYLOR.—On Nov. 14th, at Eaton-hill, Norwich, Sidney Johnson Taylor, M.D., aged 67.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

PUBLIC HEALTH IN TANGANYIKA.

A REPORT on the Mandated Territory of Tanganyika for the year 1923 has been issued from the Colonial Office for the information of Parliament. The Territory consists of that portion of the former colony of German East Africa which, under the Treaty of Peace with Germany, it was agreed should be administered under a mandate by His Britannic Majesty. It extends from the Umba River on the north to the Rovuma River on the south, the coast-line being about 500 miles in length, and includes the adjacent islands. The total area is about 365,000 square miles. Along the coast lies a plain, varying in width from 10 to 40 miles, behind which the country rises gradually to a plateau constituting the greater part of the hinterland. This plateau falls sharply from a general level of 4000 feet to the level of the lakes (Tanganyika, 2590 feet; Nyasa, 1607 feet), which mark the great Rift Valley extending northwards to Lake Naivasha. The seat of Government is Dar-es-Salaam (population approximately 25,000), a modern town founded in 1862 by the then reigning Sultan of Zanzibar and subsequently occupied by the Germans in 1887. The highest parts of the Territory are in the north-east, where are the extinct volcanoes, Kilimanjaro, which rises to 19,720 feet and is snow-capped, and Mount Meru (14,960 feet). In the south-west are the Livingstone Mountains, where the highest peak is over 9000 feet. The population of the Territory, according to the latest census (1921), was as follows: Europeans 2447, of whom 1598 were British subjects; Asiatics 14,991, of whom 9411 were Indians, 7987 Goans, and 4782 Arabs; natives 4,107,000. The European population is composed of officials, planters, merchants, and employees of business firms and estates, while Indians and Goans find occupation as shopkeepers, clerks, and artisans.

Infectious Disease.

Epidemics.—In 1923 the Territory was remarkably free from epidemics, and the general health compared favourably with previous years; plague and small-pox showed a diminished incidence, while there was only one outbreak of cerebro-spinal fever of any importance; they occurred in a few villages on the shores of Lake Victoria, east of Mwanza, where 90 cases with 82 deaths were reported. Early in the year epidemic *influenza* broke out in the south-western area. The type of disease was not severe; the epidemic was always well in hand, and was completely stamped out by the end of the year. Influenza of a more severe type broke out in the neighbourhood of Singida during November, but energetic measures were instituted, and the disease did not spread to the surrounding districts. There were 33 deaths during the year from small-pox, 89 from cerebro-spinal fever, 26 from plague, and 291 from influenza. In addition there were several outbreaks of minor infectious diseases such as chicken-pox and mumps.

Trypanosomiasis.—Cases of sleeping sickness continued to occur in the Mwanza district, 49 cases being diagnosed during 1923 as compared with 92 in 1922. The removal of the natives from the neighbourhood of the forest appears to have checked the disease in the Sultanates of Itilena, Sengerema, and Usmao, but in the Ntusu district, where the removal was not so thoroughly carried out, 22 were discovered. It seems certain that infection is acquired by the natives when visiting the tsetse-fly forest to cut poles, make rope, and for other purposes. The disease has shown no tendency to assume true epidemic proportions, and a violent outbreak need not be apprehended. The principal medical officer visited the area in September and October, and took with him a supply of Bayer "205," but it is too early as yet to give any definite opinion as to the results of the treatment with this drug, though the reports received to date are encouraging.

Venereal Disease.—Until a medical survey can be made, and continuous travelling undertaken by medical officers, the extent of venereal disease can only be estimated so far as the towns are concerned. Many of these are without doubt heavily infected, and in the Bukoba jail it was found that over 50 per cent. of the male prisoners and 25 per cent. of the females were syphilitic. Many natives present themselves for treatment, but cannot be persuaded to continue to attend until they are properly cured. In the country districts where estimates of prevalence have been based in the past on non-professional opinion, it is probable that the extent of venereal disease has been greatly exaggerated, and that laymen have frequently diagnosed as syphilitic symptoms which are certainly those of yaws, a disease which is known to be widespread throughout the Territory, while even leprosy is mistaken for it. It was found that on the medical examination at the Tabora hospital of 2000 or 3000 recruited by private employers during the year, less than 1 per cent. showed infection of venereal disease, while at Pagani hospital only 36 cases were found amongst 2300 natives treated during the year. In Mwanza district, which had always been considered one of the centres of the disease, the medical officer reports that it is no more common than in most East African towns. Evidence supports the view that its prevalence in the country, apart from the townships, has been magnified, and that tribal custom is the main bulwark against its spread. The formation of relationships between the women of the tribe and strangers leads to abandonment of family ties, to the loss of the marriage dowry by the parents, and of potential man-power by the community, so that, while no great importance is attached to intercourse before marriage so long as this takes place with members of the tribe, public opinion discourages promiscuous relations with aliens. There are, of course, tribes whose moral laxity is more pronounced, and it is among these that the disease is spread by itinerant native leaders from the towns, who are generally carriers of infection. The dangers of the disease and of its sequelæ are constantly being brought to the notice of the natives, and in the Mwanza and Tabora districts pamphlets have been distributed.

The Treatment of Yaws.—A great step forward in the treatment of yaws was achieved by the adoption of bismuthotartrate of potassium and sodium as a substitute for higher arsenical preparations such as neo-salvarsan, &c., which were hitherto regarded as specifics for the disease, but were so expensive that their employment on a large scale was hardly possible. An account of the successful treatment of syphilis by bismuth at the Pasteur Institute in 1922 led the deputy principal medical officer, Dr. Shircore, to test its value in the treatment of yaws, when it was found that even advanced cases were cleared up and apparently cured within a few days. The cost of this drug, which in the first instance was prepared locally (and which still is in Kenya), is very small, working out approximately at a penny for ten doses, as against 6*s.* for a dose of neo-salvarsan; for a small sum it should, therefore, be possible to initiate a campaign against the disease, and, by means of travelling dispensaries working systematically over the country, largely to eliminate it.

Malaria is common throughout practically the whole Territory, and the mountainous areas in the north-east and south-west are the only districts where the danger of infection is not constantly present.

Medical Arrangements.

Medical examination of all recruited labour prior to engagement is insisted on and the health of the workers has been good. Residence on coast seems to have no ill-effect on the native from the highlands, but, on the other hand, the inhabitants of low-lying districts who proceed to high altitudes are extremely liable to pulmonary complaints which often prove fatal. For this reason requests from Arusha and Moshi to recruit labour from the Lake Victoria districts were refused after consultation with the medical authorities. The missions accomplish much valuable medical work among the natives, and include among their personnel four medical practitioners, several nurses, and a number of members who have received some training in medical and nursing work. Some of the large sisal estates have a dispensary and a small hospital ward for sick natives on their plantations, where medical attention is provided in minor ailments, the more serious cases being sent in to the nearest Government hospital. For the year ending March 31st, 1923, the expenditure on the medical department amounted to £90,000; for 1923–24 £104,000 were approved, while £116,000 have been granted for 1924–25, but even these increases do not permit of the extension which is desirable and necessary. State medical services are at present confined to the Government hospitals and dispensaries where natives come for attendance, while only in the more important centres is it possible to station European medical officers; and though the missions cover a wide field in the districts, much remains to be done. Medical salaries are on the whole more generous than those of other departmental officers, but it is difficult to obtain suitable candidates as medical officers, and the shortage was so severe that for part of the year there was no European doctor between Dar-es-Salaam and Tabora.

Climate.

The climate of Tanganyika Territory varies greatly according to the height above sea-level of the several districts. Roughly, four climatic zones can be distinguished, though even among these there are considerable local variations. (1) The warm and rather damp coast region with its adjoining hinterland. Here conditions are tropical though not unpleasant, except just before and during the rainy seasons, when the heat is trying and the atmosphere humid. The average yearly temperature is 78°. (2) The hot and moderately dry zone between the coast and the central plateau (300 feet to 2000 feet). This zone is characterised by low humidity of atmosphere, less rain, and a temperature rather lower but with greater daily and yearly variations. (3) The hot and dry zone of the central plateau between 2000 feet and 4000 feet in height. The climate of this zone differs, of course, greatly in parts, but its prevailing characteristics are low humidity, little rainfall (at Tabora an annual average of 32 inches), a fairly high mean temperature. The heat is dry and not so trying to the European as the moist and steamy warmth of the coast, while the nights are invariably cool. (4) The semi-temperate regions around the slopes of Kilimanjaro and Meru, of the Usambara highlands, the Ufipa plateau and the mountainous areas of the south-western area (5000 feet to 10,000 feet). Frosts occur at the higher altitudes and the nights are cold. These districts enjoy a bracing climate, and alone can be considered healthy for Europeans. There are two well-defined rainy seasons annually. Generally speaking, the long rains begin in February or March and last for two or three months, while the short rainy season extends from October to November, but the rainfall is low for a tropical country and droughts are not infrequent.

HEALTH CONDITIONS IN GOLD COAST COLONY.

THE report on the Blue-book for 1922–23, signed by Mr. W. H. Gilliland, Assistant Colonial Secretary, states that the population of the Gold Coast and its Dependencies, as taken in the Census of 1921, was 2,078,043. The number of Europeans resident in the colony during 1922–23 was 2998, composed of 979 officials, 1410 engaged in mercantile pursuits, 521 engaged in mining, and 88 missionaries. In the 17 registration areas there were recorded during 1922–23, 2988 births, 149 stillbirths, and 3283 deaths, Europeans being included in these figures. The number of births registered exceeded all previous records, but is still below the actual figure, as birth registration continues to be very unpopular amongst the uneducated classes. The figure for deaths is approximately accurate as no burial permits are granted without registration. Pulmonary and intestinal diseases are again the principal causes of death. An analysis of the death and invaliding statistics of the European population is appended:—

1922–23.	Number of residents.	Deaths.	Invalided.	Death-rate per 1000.	Invaliding-rate per 1000.
Officials ..	979	6	30	6·12	30·64
Merchants ..	1410	19	29	13·47	20·56
Mining companies	521	5	15	9·59	28·79
Missionaries.	88	1	2	11·36	22·72

The six deaths amongst European officials were due, one each, to the following causes: hyperpyrexia, compound comminuted fracture and septicæmia, blackwater fever, yellow fever, dysentery, and encephalitis. Of the 25 deaths amongst European non-officials, 5 were due to yellow fever, 6 to blackwater fever, and one each to malaria, unclassified fever, enteritis, syncope, pulmonary tuberculosis, intestinal obstruction, cut-throat, fractured skull, septicæmia, heart failure, meningitis, mitral disease, fatty degeneration of the heart, and cancer. Treatment was given during the year in 7506 cases of malaria, 908 of dysentery, 22 of yellow fever, 599 of pneumonia, 385 of tuberculosis, and 1 of plague. Fifteen cases of sleeping sickness were also treated. Of 48 cases of blackwater fever 6 proved fatal, and of 18 definite cases of yellow fever 13 resulted in death. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitude. It is not in itself unhealthy, but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases, against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries. The efforts of the medical and sanitary authorities in promoting the treatment of disease and the knowledge of general hygiene continue to exercise a beneficial effect on the general health of Europeans. The rainfall varies with the configuration of the country, and is highest in the mining districts of Tarquah, Upper and Lower Wassau, &c., and also at Axim. The first rains, or rainy season proper, begin in March and end in July; the later rains are spread over the months of September and October. The rainy season is marked by a considerable fall in the temperature. The Harmattan season begins in December and ends in February. The rainfall in inches in 1922–23 was 26·53 in Accra, 52·32 in Aburi, 50·66 in Seccondee, 65·42 in Axim, 62·23 in Tarquah, 65·25 in Coomassie, and 38·48 in

Tamale. At Accra the mean shade temperature for the year was 80·0° F. At Coomassie and Seccondee it was 78·9° and 79·3° respectively. The mean daily range of temperature in Accra was 16·9°.

THE HEARSON CAPSULE.

THE connexion between a poultry-farmer in Surrey, a bacteriologist in his laboratory, and a club steward serving ice-cold drinks in the tropics, may sound remote enough to please the most fastidious student of detective fiction. The Hearson capsule, however, supplies this link: it is employed nowadays to regulate incubators, bacteriological or otherwise, and in a modified and extended form for regulating high and low temperatures. It is, therefore, of invaluable assistance both to the bacteriologist, although forming an almost insignificant part of his apparatus, and also to the club steward who wants to keep his drinks in a cool place where the beer will not freeze solid. The poultry-farmer also wants his incubators at a constant temperature, and 40 years ago the late Mr. Charles Hearson was approached by a friend who kept a farm in Surrey and who was making tentative experiments on the artificial incubation of eggs. He was finding it difficult to keep his primitive apparatus, consisting of a large box surrounded by a water-jacket, at a constant temperature. His difficulties appealed to Mr. Hearson, who shut himself up in a room at the top of a house in South London and worked until he had discovered the thermostatic capsule which bears his name. All this is told in the introduction to the latest catalogue of the well-known firm of Chas. Hearson and Co., Ltd. The Hearson capsule consists essentially of a narrow chamber formed by sealing together two flat pieces of metal. Into this chamber is introduced a small quantity of fluid, the boiling-point of which is near the temperature which it is desired to maintain. When this temperature is reached the fluid boils and the capsule expands moving a lever which cuts off the supply of heat. A large range of temperatures can be provided for by choosing suitable fluids, while for very high or low temperatures a different principle is involved. Such was the starting point for the manufacture of the modern incubator and the Hearson capsule can be employed for regulating the supply of heat by oil-lamps, gas, or electricity. It sounds very simple, but it is "the secret of the completion of the capsule"—that is, the sealing-off of the metal chamber—"which has enabled the Hearson Company to defy all competition."

UNITED HOSPITALS WINTER SPORTS CLUB.

To the Editor of THE LANCET.

SIR,—I trust that you will assist me once again to bring this club to the notice of your readers. It was founded to obtain advantageous terms at winter sport resorts and to encourage these sports amongst past and present students of all recognised medical schools in the United Kingdom. This year the Lord Dawson Cup for Ski-ing will be competed for early in January at the Club Hotel at Griesalp, Bernese Oberland; but for those members who prefer the Engadine a second hotel at Sils-Maria (45 minutes' drive from the station at St. Moritz) has undetaken to assist our members in many ways. Full particulars can be obtained from the manager of the Grand Hotel, Griesalp, Bernese Oberland, and from the manager of the Hotel Waldhaus, Sils-Maria (Engadine). I am, Sir, yours faithfully,

J. DUNCAN LYLE, Hon. Sec.

Maidenhead, Nov. 14th, 1924.

NATIONAL BABY WEEK COUNCIL.

AT a meeting of the Council held at Carnegie House on Nov. 12th Dr. T. Watts Eden spoke on the relation of antenatal care to maternity and child welfare. He suggested three main reasons why expectant mothers should receive supervision: (1) While the reaction and disturbance caused by pregnancy varied enormously in different cases, the margin of health was always a narrow one, and medical care was desirable. (2) Some of the most serious emergencies connected with child-bearing gave warning by premonitory symptoms. The classic example of eclampsia was nearly always preceded by albuminuria, which could be detected by skilled attention and the fits averted. (3) Difficulties likely to arise during the birth process, such as narrowing of the passage or faulty position of the child, could be discovered and dealt with satisfactorily before the birth process began. Antenatal work might influence the unborn infant through environment, using that word in a broad sense. Certain infectious diseases could be transmitted from the mother to the child, and some organic diseases might render the placenta incapable of carrying on its work, when the life of the child would come to an end. Nervous disturbance affected the chemical composition of the blood and the bodily secretions, and would influence the fluids supplied by the mother to the infant. Peace and quiet was one of the greatest needs of the expectant mother; the child of a nervous mother was subject to the influence of a nervous environment while still in the uterus.

Miss Hester Viney, speaking of the difficulty of antenatal work among village mothers, alluded to their complete ignorance of physiology. A woman who did not even know she had a pelvis would not be impressed by information concerning her pelvic measurements. A scheme by which a higher fee was charged for late booking with doctor or midwife had proved helpful in getting earlier into touch with patients. In rural districts antenatal work usually grew out of the welfare centre. Mr. E. B. Turner, F.R.C.S., said that propaganda was more difficult among fathers than among mothers. Men did not realise the strain their wives were subject to in child-bearing, and were neglectful from want of knowledge rather than want of heart. Health films could be made both attractive and educational; antenatal centres should be held for fathers as well as mothers, and they should be taught about diseases from which they might suffer and which might affect their wives. The medical curriculum now entailed attendance at welfare centres, so that young medical practitioners were better instructed in matters of maternity and child welfare than formerly. A ten minutes' film on the work of a welfare centre was shown after the meeting, giving a good idea of the routine activities of the centre. The action of the kinema unfortunately produced its curious atmosphere of intense rapidity, especially marked in the scenes of the doctor's consultation. This slightly modified the otherwise entirely useful effect of the pictures.

A NEW SUN RAY ARC LAMP.

THE Westminster Engineering Company has recently produced a new sun ray arc lamp which, it is claimed, gives a light of great intensity, rich in ultra-violet rays and also in luminous and heat rays. The lamp contains special large white-cored carbon electrodes which burn with a long flame with about 90 volts across the arc and they will last for seven to eight hours without attention. Both carbons are automatically adjusted so that the point of focus of the arc remains fixed. The lamp is made to work with either an alternating or a direct current, and in the forme case a choking coil is included in the apparatus. An easil worked control board enables resistance to be introduced into the circuit if necessary, and the lamps are made fo the ordinary circuits of 220/250 volts and 100/120 volts the arc takes about 25 amperes, and two or more can b arranged in series. The arc can be hung from a roof-rai and appears to be particularly valuable for the applicatio of the general arc light bath. According to the results o certain investigations the light from this arc is stated t contain the heat, visible and the longer ultra-violet rays and is comparable to sunlight. Many institutions are now installing arc lamps, for the tendency in this country is t rely upon artificial sources for "sunlight," and the "Westminster-Eidinow" lamp is already deservedly popular It is simple to work; burns steadily, producing a powerfu long flame arc, and is comparatively economical in current The mercury vapour lamp is being discarded in favour of it and the use of electrodes other than carbon is said to produc light of a less range of usefulness from the therapeuti point of view. There are no reflectors and no spurting pieces of metal during burning, so that a small circle o patients can sit round in as close proximity as is desired Several of the big London hospitals, and sanatoriums, tuberculosis dispensaries, infirmaries, and children's institution in different parts of the country, have installed this lamp and report that therapeutic results are easy to obtain.

General light bath with "Westminster-Eidinow" lamps.

An Address
ON
CONSCIOUSNESS.

Being the Presidential Address to the Section of Psychiatry, Royal Society of Medicine, delivered on Nov. 11th, 1924,

BY CHARLES S. MYERS, C.B.E., M.D. CAMB., Sc.D., F.R.S.,
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LITTLE more than a generation ago, at one of the largest London hospitals, its most distinguished physician once observed to one of his clerks fresh from undergraduate Cambridge: "The sooner, my dear fellow, you forget your physiology, the better it will be for your medicine." Such advice would hardly be ventured to-day. Nor, I think, would a medical student be now told by any of ourselves: "The sooner you forget your psychology, the better it will be for your psychiatry," not perhaps because psychology has proved now more useful in furnishing an applied science than physiology proved then, but because at present, with rare exceptions, the medical student is afforded no opportunity of learning psychology, but has to pick up a smattering of it as best he can when he comes to approach the problems of psychological medicine.

If for this reason alone, it may be not altogether a disadvantage for the Chair of the Section of Psychiatry of the Royal Society of Medicine to be held from time to time by a psychologist whose excursions into psycho-pathology are few and narrow—in my own case limited to the years of the recent war. I need hardly say how honoured such a one feels with this invitation, and what a responsibility it places on him when he endeavours to present certain views and aspects, derived largely from a study of *pure* psychology, which he hopes may prove interesting and suggestive to those working in the applied field of *medical* psychology.

CONCEPTIONS OF CONSCIOUSNESS.

In this address I propose to review our conceptions of consciousness.

Let us first consider its main forms or modes. These have for two generations past been classified as cognitive, conative, and affective; the cognitive consciousness dealing with the experiences of sensing, perceiving, apprehending, imaging, recollecting, imagining, and other kinds of knowing and thinking; the conative consciousness with the experiences of acting or striving or willing towards a more or less definite end; and the affective consciousness with its experiences of pleasure and displeasure. The inadequacy of this classification has been increasingly, if but tacitly, felt. Thus, the affective consciousness deals with far more than affective tone—mere pleasure and displeasure. (Indeed, as I shall presently indicate, I hesitate to regard them as primitive.) It covers every kind of feeling, not merely emotional, but also intellectual—feelings of familiarity, certainty, doubt, relationship, and so forth. It covers feelings relating to the *acts* of the self, as well as to the *condition* of the self.

Moreover, when we are engaged in apprehending or recollecting any situation, it is obvious that we must inevitably employ the conative, as well as the cognitive, mode of consciousness as above distinguished. Indeed, knowing becomes a form of doing. Hence, attempts have been made to classify the modes of consciousness not on these older lines, but on the basis of a distinction between doing and what is done, between process and product—i.e., between act and content—e.g., between the act of perceiving and what is perceived, the act of remembering and what is remembered, the act of deliberating or deciding, and what is decided on or deliberated about. According to this scheme, consciousness is classifiable along the lines of self-activity and the outcome of self-activity. But even this appears unsatisfactory, because, in the first place, it leaves the affective consciousness out of consideration and, in the second place, it implies that whatever product of consciousness appears to be "presented" to the self is really a product of self-activity.

Two Classes of Feelings.

In relation to the self and the self's activity feelings appear to me divisible into two classes—the "ipsi-affective," attached to the self, and the "actu-affective," attached to the self's acts. Thus, in the state of *strain* or enhanced vitality produced by a favourable environment, the ipsi-affect is a feeling of "exhilaration" (evolving into "gladness"), the actu-affect is one of "interest." In the state of strain produced, on the other hand, by an unfavourable environment, the ipsi-affect is a feeling of "uneasiness" (evolving into "distress"), the actu-affect is one of "repugnance." Again, in the state of *rest* produced by a favourable environment, the ipsi-affect is a feeling of "ease" (evolving into "bliss"), the actu-affect is one of "contentment"; while, in the state of rest or reduced vitality produced by an unfavourable environment, the ipsi-affect is a feeling of "depression" (evolving into "sadness"), the actu-affect is one of "apathy."

In the second place, is it reasonable to suppose that when we suddenly hail a friend or are struck with an idea, the corresponding percept or thought is *consequent on* an act of the self? Is it not more in accordance with common sense to suppose that such a percept or thought is a "presentation" to the self, rather than that it is produced by the self? Are there not occurring a number of acts that yield conscious products—acts which are independent of the self? Are not the acts of sensing and the spontaneous revival of past experiences examples of these, and are not their mental products—sensations, say of blue or noise, and memories, say of a forgotten duty—*received* by instead of being *created* by the self? To this it may be replied that such acts and products are at first mental but not conscious, and that the only consciousness which is possible for us is the self's consciousness—the consciousness arising from the activity of that highest unitary system which we call the "ego." Blue is not a sensation until the self attends to it. Before it so attends, something is presented—some mental content produced by the mental act of sensing, which involves not self-activity, but the activity of some lower mental function—mental but not conscious.

The attempt may be made to evade this difficulty by supposing that originally—e.g., on the first occasion that the sensation was ever experienced, the self was consciously engaged in the act of producing it, but that in later life the act had become so habitual that, self-activity becoming no longer involved, the act had been relegated to lower nervous levels.

The Nervous Paths.

To this it may be rejoined that there is no decisive evidence that, as with practice an acquired act becomes a habit, the nervous paths are essentially different (save in so far as concomitant redundant acts are abandoned) from those which were employed during the acquisition of that habit. It may well be that the presence or absence of the consciousness of self-activity is dependent on the degree of resistance which the nervous processes encounter, and that practice wears down this resistance, canalising or facilitating one and the same path as the unpractised conscious act gradually becomes a habitual one. But if consciousness is dependent on the extent of such highest resistance, we have to remember, on the other hand, that when that resistance is excessive—owing to the harmful effect of the experience on the organism—consciousness is again abolished. True, the resistance or inhibition against entry into consciousness may appear to be here of another kind—due to incompatibility instead of to novelty. But elsewhere in mental life we have at least two other seeming examples of an intermediate range, on either side of which the appearance of one and the same function is favoured.

Thus, for the avoidance of suggestion, the field of consciousness must not be too diffuse, nor must it, on the other hand, be too restricted. The condition of hypnotic suggestion, as is well known, is induced by fixation of attention within narrow limits—gazing at a point of light, thinking concentratedly of going to sleep, &c. But the suggestibility of a person is also increased in the opposite condition of reverie, brought about by asking the subject to relax his attention and to "think of nothing." Somehow each of these antagonistic states leads apparently to the same result—the abolition of self-control, and the acceptance of ideas which under normal conditions would be rejected.

Emotional Experiences.

The second example which I have in mind relates to the development of emotional experience. There is good reason to suppose that one of the principal factors determining our actual experience of an emotion is the degree of resistance which prevents its expression in bodily activity. If that resistance be not great, if, say, a dangerous situation is fairly readily soluble by the reaction of flight, the emotion, of fear, may not be felt. But when great resistance or conflict is offered to such expression, the emotion is at once developed. A similar standpoint has been taken by some, e.g., Prideaux, who have carried out observations on the psycho-galvanic reaction. Within certain limits this reaction is more intense when the emotion with which it is associated is less felt. To take the extreme case of the idiot, he gives more free expression to an emotional situation and develops the psycho-galvanic response to it more strongly than a person of normal intelligence, but there is good reason to suppose that he *feels* the emotion less intensely. A certain resistance or conflict in regard to expression—what Drever calls a condition of "feeling tension"—seems essential before emotion can occur.[1] But Drever believes that emotional feeling is favoured not only "when there is some check, or at least pause, in the attainment of the end or satisfaction of the impulse," but also "when the end" so far from being checked, "is attained so quickly or abundantly that action cannot keep pace with feeling."

DEVELOPMENT OF CONSCIOUSNESS.

We may well wonder how excess or defect of a given condition may lead to the same result, but an explanation in evolutionary terms appears worthy of consideration. Along these lines we may conjecture that it is pre-eminently from the *moderate* condition that new effects are developed, the more primitive effects persisting in *extreme* conditions that fall far short, or are far in excess, of the moderate. On this supposition, extreme suggestibility is a primitive mental characteristic, which has gradually become reduced in the course of evolution under conditions of moderately restricted attention. By the same reasoning, readiness to experience emotion is a characteristic of the *primitive* mind. In the higher organism it persists when its end is extravagantly attained or when there is considerable check in the attainment of its end; on the other hand, it becomes reduced or abolished when that end is attained without undue speed and fullness, on the one hand, and without much check or conflict on the other.

So also in regard to consciousness and resistance. The primitive condition of the living organism is such that its mental activity is largely unconscious. Conscious activity has been differentiated from it. From this it must not be inferred that the beginning of conscious life is to be sought in reflex action; the reflex act is rather the decadent relic of a primordial mental activity which preceded the development of conscious activity. Mental activity is prior to habitual and reflex action; the mechanical is an abstraction from the truly mental.

The distinction we have drawn between act and content, between process and product, is characteristic of all vital activity. We can separate the act or the process of secreting from the secretion or the product of that process. Whether the level of the nervous system be high or low, whether or not there be attendant consciousness of the act or of the content, we can speak of the process on the one hand, and of the product on the other, and we may suppose that every such act involves mechanical work and hence the expenditure of force, and that with every act energy is expended, involving a degradation manifest in the form of electricity, heat, &c. But vital activity is characterised by anabolic as well as by katabolic processes—by creative as well as by destructive changes. Furthermore, these creative changes are characterised by some degree of purposiveness; they do not occur merely by blind chance. Biologists are coming generally to recognise the insufficiency of purely accidental variations as an explanation of the origin of species. Hence in addition to the explosive force of mere acts, we have to consider the more continuous setting or direction in which those acts take place. It is the complexity and prominence of this directive setting that pre-eminently distinguishes the nervous from all other tissues of the living organism, and that above all distinguishes the conscious from the unconscious mental life of that organism. And as direction depends on pre-existing dirigibility, direction itself demands plasticity, in contrast to fixity, of reaction.

Environmental Stimuli.

It is fairly obvious that if only one response to a given stimulus were possible, consciousness would be of little value and would hardly have arisen. Its utility arises when alternative reactions are possible, when some sort of choice has to be made between them, for the benefit of the organism as a whole, or when, as in an important emotional situation, it is essential that no other conflicting reaction be made to another simultaneous experience. Consciousness is thus a selector of alternative *responses*.

It is also a selector of alternative *stimuli*. If, owing to uniformity of external conditions or to the immobility of the organism, the organism were unable to alter its relation to the environment, consciousness again would hardly have arisen. One of its most important functions is to maintain an environment that is favourable and to avoid one that is unfavourable, whether that environment be a physical one, say in the form of external nourishment or temperature, or a mental one, say in the form of appropriate or noxious thoughts.

But in order to act effectively as the selector of alternative reactions and of its environment, relatively small variations in the environment must differ in the reactions evoked. If two slightly different stimuli gave identically the same response, no purpose would be served by our being conscious of any difference between them.

These, then, are the main functions and conditions of consciousness; and in realising them we realise still more clearly how all consciousness must form part of "self-consciousness," by which I mean not necessarily the knowledge, the awareness of the self, but the involvement of that highest integration of activities which is known as the self within the indivisible, organic, individual organism. Consciousness thus functions as the coördinator of all the past and present experiences of the organisms so as to give direction to the selection of its future activities and environment, in compliance with the organism's sanctions and ends.

The Complexity of Primitive Experiences.

I spoke just now of the reflex act as a decadent form of mental activity. It has been too common an error to regard the simple in life as prior to the complex. We are apt to forget that the most lowly unicellular organism eats, breathes, secretes, excretes, reproduces, and exhibits irritability, contractility, and even apparent choice and ability to learn by experience, whereas in the higher organism such functions are specialised in its different tissues. The vague complex, in other words, precedes the differentiated simple. So it is largely in the life of consciousness. Simple sensations are not the first experiences. The first post-natal or even pre-natal experiences are vague affections of the self, or of what will come in time to constitute the self, as later it becomes differentiated from external situations, and as later external objects come in turn to be differentiated from external situations. At quite an early period many of the infants' experiences, especially the visual, become projected first as situations, then as objects, instead of being as at first little more than affections, so to speak, of the self. It is only gradually that the separate, simple sensations, say of whiteness, softness, and sweetness, are differentiated from these objects. But these sensations, we must remember, are not wholly projected. Red, for example, clearly resides in the object, but pain lies in ourselves, while such sensations as those of temperature and taste occupy a half-way position.

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[1] Instinct in Man, second edition, 1921, p. 272.

The observations of Head and Gordon Holmes in conditions of thalamo-cortical interference indicate that such projection may be lost in lesions of such sort. A prick may be no longer projected as such, but described by the self as a characteristic change in, as an affection of, itself. Indeed, under normal conditions the less projected the sensation, the more it approximates to an affective modification of the self. Titchener is doubtless right in believing that sensations (hence cognitive states in general) have become evolved out of feelings. I believe that this power of projection, the ability of the self to regard its own change of states as something outside itself, is of far greater importance than is generally supposed. It surely culminates in the self looking down not merely on external independent objects, but also on its own *other* selves who come to be regarded as acting under its jurisdiction. Thus the most consummate actor is said to be he who, though he feels the emotions he portrays, experiences them in such a way that it is as if he were looking down upon another self that actually feels them. Something of the same effect, though doubtless of different causation, is observable in that transient, slightly pathological condition known as "depersonalisation," common to large numbers of us, wherein the external environment appears for the moment as strange, and we seem to be looking on another instead of on ourself as really experiencing it and acting on it. It occurs still more strikingly, of course, in the more definitely morbid condition of loss of reality. Similar processes may account for that alternation of personalities behind which there is a continuous personality that knows the acts and experiences of the others. The well-known limits of post-hypnotic suggestibility indicate the same preservation of a higher, dominant, however dormant self. The integrity, the intactness of this supreme self may prove, I even suggest, to be the future criterion between so-called psycho-neurotic and psychotic conditions.

THE BUILDING UP OF CONSCIOUSNESS.

While the simple is, so to speak, distilled from the wider complex, nevertheless synthesis goes on, as well as analysis; and many instances will easily occur to one where new experiences are dependent on an integration of stimuli or of more primitive experiences. On the one hand, where a reflex is inherited or a habit is acquired, consciousness is useless, since the stimulus inevitably releases one and only one reaction. On the other hand, where an instinct appears, consciousness (let us call it instinct feeling) is essential, because intelligence can be brought to bear so as to improve by growing experience the imperfect instinctive reaction to the situation. Where emotion enters, the number of alternative conflicting instinctive reactions to a stimulus has become manifold—e.g., in the case of fear, flight, rigidity, flaccid palsy, crying, clinging to the parent, fighting at bay; and their respective *instinctive* feelings become integrated about a common object on this higher plane to create *emotional* feeling. Where sentiment enters, a number of alternative conflicting emotional feelings have become integrated about a common idea, and a new *sentiment*-feeling—e.g., that of love or hate—emerges.

The importance of the integration of such alternative conflicting mental states as the creator of new ones can hardly be over-estimated. Rivers has from the ethnological standpoint attributed new cultures to the clash of immigrant with indigenous ones; and it seems possible that the creations of the inspired genius may be the unconscious product of similar conflict.

OUR KNOWLEDGE OF LIVING SUBSTANCE.

Let us now consider what we know of the activity of living substance. It exists in two forms: (1) intensive and momentary, and (2) moderate and prolonged. The contractions of striated muscle illustrate intensive and momentary vital activity; the reactions of heat and cold spots offer another example. There appears to occur a firing off of already prepared, explosive material, followed fairly rapidly by fatigue. The contractions of unstriated muscle illustrate the more moderate and prolonged form of activity, where tone and long-continued adaptation seem to replace the explosive force and consequent fatigue characteristic of the first-mentioned form. Again, the tone and the posture in striated muscle, both of them moderate, long-continued, and relatively indefatigable, illustrate the same form of activity. They involve a directive balance, a delicate nervous coördination between two opposing muscles, flexor and extensor. The sensations of warmth and coolness depend on a similar mechanism. In contrast to the *spot* system subserving heat and cold, this *diffuse* spot-less sensibility involves a close coördination between the mechanisms for warmth and coolness, as is exemplified first in the set state of balance that occurs in the form of "sensory adaptation," a kind of stationary posture, as it seems to me, between the opposing mechanisms of warmth and coolness, when the skin is exposed for some time to a warm or a cool environment, and secondly, in the action resulting from disturbance of that balance that occurs in the form "sensory contrast," when that environment is suddenly replaced, say by a neutral one. Such phenomena as adaptation and contrast do not occur in the spot system; there we have merely sudden, ungraded reaction and fatigue.

Thus we come to contrast powerful energetic explosive acts, followed by a loss of material available for the allowance of further acts, on the one hand, and the more moderate, more graded activities on the other hand, involving reciprocal inhibition and facilitation, and finally yielding a long-continued set or state of adaptation or attitude.

Acts and Attitude of Mental Activity.

May we not usefully distinguish these two forms throughout mental activity, even up to the highest conscious processes? In other words, have we not, on the one hand, the momentary, relatively fatigable acts of apprehension, recall, decision—of *expression* in general, and on the other the long-continued, relatively persistent sets or attitudes—mental *postures*, if you like, in which those varying acts take place? On the one side, we have the more mechanical acts; on the other, the more directive attitudes—though, of course, the acts themselves are far from being devoid of a certain coördination and direction. We recognise thus in mental activity a more mechanical factor and a more directive factor, each involving the expenditure of work; but whereas we have some conceivable idea of the nature of the former, we have none whatever of the nature of the latter.

We might well pause, did time permit, to consider what is the effect of profound morbid changes in attitude on the consciousness of acts. Two obvious and opposite directions of change at once present themselves. At the one extreme, attitude is unusually persistent and unvaried. According to the old diction, Semper idem sentire ac non sentire idem est. At the other, attitude is to all intents and purposes non-existent; the mental acts follow one another over a vast field whose meaning is changing with bewildering speed. So far as consciousness is concerned, have we not here yet another of the illustrations already given in this paper that "extremes meet"?

All that we can say of any higher mental attitude is that it is closely associated with interest—innate (i.e., immediate) or acquired (i.e., indirect). Hence has arisen the wider notion, extended not only to our higher attitudes but also to our higher acts, that they are dependent on affects, whether the affects partake of those moderate, more continuous forms or attitudes known as interests and moods, or of the more powerful, less lasting forms or acts known as feelings of emotion and of sentiment. Hence, too, has arisen the notion that there is a common fund of mental energy of affective origin, a single libido which can be drained off now into one, now into another channel of mental and motor activity in such a way that what one channel gains involves a corresponding loss among other channels. We reach, indeed, Spearman's conception of a central factor common in various degrees to all forms of intellectual activity.

Spearman does not attempt to define the nature of this general or central factor. He calls it "*g*," but it must not be identified, as is so frequently done, with our notion of "general intelligence." Whatever it is, it is not this. Spearman admits that he is quite unable to express "*g*" in psychological terms. Its presence and its amount are determined by mathematical principles based on the inter-correlation of the various intellectual activities with one another. He prefers to regard "*g*" as an unknown physiological factor, and he admits Godfrey Thomson's criticism that the very existence of "*g*" is only one of alternative conclusions that may be drawn from the mathematical studies of correlation which he employs to establish and to measure it.

THE AFFECTIVE CONSCIOUSNESS.

The early neglect of the importance of affects has resulted, I think, in an exaggerated swing of the pendulum to the opposite extreme. It is, I think, ridiculous to suppose that the energy informing our acts is derived solely from our affects. We may, however, reasonably consider the view that, using the term in its widest sense, our attitudes serve as keys that unlock the energies resident in our acts. It is also ridiculous to suppose that our acts depend for their energy on *drainage* from one set of channels to another. The modern studies of repression alone suffice to prove that censoring, as the Freudians term it, involves actual work in the imposition of resistance. The mind is not comparable, as according to McDougall, to a vast sewerage system, in which the active channels drain off energy from those which are ipso facto rendered inactive; inhibition involves as much work as excitation.

The same exaggerated importance of the affective consciousness has led to the attribution of all forgetting, every slip of the tongue, to emotional conflict and inhibition. Surely prolonged laboratory experience in learning large numbers of senseless syllables or in rapidly naming long series of familiar objects suffices to show the extravagance of this view. Deterioration or disorder in cognitive processes is not always dependent on affective factors. We must recognise that the act may suffer through its excessive exercise, as well as through direct inhibition by other acts; at the same time fully admitting that the attitude which suffers mainly through flagging interest or conflicting feeling may also thus influence the act.

THE CENTRE OF CONSCIOUSNESS.

That some central factor of general intelligence exists, depending on the functioning of the highest system of mental activities known as the self, there can be little reasonable doubt. But its conception is also commonly bound up with that of localising the various conscious processes, which are *not* those of general intelligence, in different regions of the brain. For generations past it has been customary to believe in special centres for the various motor, sensory, and perceptual activities involved in speech, and to regard them as "seats of consciousness," connected with one another and presumably with that highest central centre of the self or ego. It is interesting to find that the recent researches into aphasia by Head have enabled him to produce cogent evidence against such a view.

For my own part, in my Cambridge lectures, I was long wont to protest against it by means of the following illustration. If I wanted to travel by rail from Cambridge to King's Cross, it would be essential for me to pass through Hitchin. A block at Hitchin would prevent my arrival at King's Cross. But I should not be justified in confusing Hitchin with King's Cross and in transferring the block at Hitchin to King's Cross. So too, if a certain occipital area must necessarily function in order that, say, an apple may be perceived as such, I should not be justified in describing that area as a "visuo-psychic centre" because I fail to apprehend an apple when that area is disorganised. All that I can legitimately infer is that that occipital area is essential for visual perception, just as Hitchin is essential for me to reach King's Cross. Seats of different consciousness must not be thus fallaciously localised in relatively small different areas of the cerebral cortex.

A similar error endangers Head's earlier conjection (in his work with Gordon Holmes) that the thalamus is the "centre of consciousness for certain elements of sensation"[2] which he infers from the results of interference of the normal connexions between the thalamus and the cerebral cortex. No doubt he would himself admit that if we interfere with a small part of the central nervous system it is impossible to suppose that that part remains the seat of conscious processes. Consciousness depends on the self. The activities of the thalamus can only affect consciousness by forming part of those activities which contribute to those of the self. All that we can safely infer is that when the thalamus is separated from the cerebral cortex its activities affect the self in a manner different from that when its normal relations to the cortex are intact. We cannot posit a "centre of consciousness" in any form.

THE NATURE OF CONSCIOUSNESS.

This brings me, in conclusion, to a brief study of the nature of consciousness itself. There was a time when mind was regarded as the product of the brain, just as bile is regarded as the product of the liver. This was succeeded by an age when mind and living matter were considered to be so absolutely different in character that for this, if not for any other reason, it seemed absurd to compare mind with bile as a "secretion" of living substance. Instead grew up on one side, the theory of psycho-physical parallelism—that mental and neural processes are two different aspects or reflections of one and the same unknown activity—and, on the other side, the theory of interactionism; that so far from being parallel they are independent and may each, according to circumstances, influence and control the other.

Times have now changed. Substance proves no longer as "substantial" as it appears. We are no longer content to regard matter as composed of solid atoms. The structure of the atom is now revealed to us as a constellation of ions, each of which appears to be merely a charge of electrical energy, endowed with inertia, mass, weight, and structure.

What exactly is the relation of such a view to the hypothesis of a structureless, continuous, almost perfectly elastic ether is so far uncertain. But the phenomena of light prove no longer to be solely explicable in terms of the undulatory theory; some of them now demand a corpuscular theory for their solution. At all events, matter is now regarded as a manifestation of electric forces, a product of activities.

MIND AND MATTER.

What now of mind? Is not this likewise a product of activities? Is the difference between mind and matter so fundamental as a hundred years ago it appeared? Are not the hidden activities of mind and matter of greater import than their more obvious products? Are not the respectively material and mental characters of these products due ultimately to such activity itself?

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[2] Brain, 1911–12, xxxiv., 181.

When we come to consider the difference between mind and *living* matter the distinction is reduced almost to vanishing point. For it is essentially the same purposive, directive, plastic, and constructive characteristics, distinguishing living from dead matter, which, raised to a still higher power, distinguish both nervous and mental activity from the activity of other living tissues. The problems of life that confront the physiologist are precisely those of mind that confront the psychologist. Life and mind must ultimately be solved in similar terms. From each we can abstract the mechanical, comparable to what we know of the activities of lifeless matter. But it may well be that the apparently blind mechanism of which physics treats is only an abstraction from a purposeful direction that plays its part in the larger universe regarded as an organism, just as we are bound to conceive of such direction even in the lowest living individuals, even in the lowest physiological levels of the higher living organisms.

With progressive evolution of these various levels have "emerged," according to the recent terminology of Lloyd Morgan and Alexander, the various levels of mental activity. It may be that the term "differentiation" will often be found more useful than that of "emergence," so often is the new really pre-existent, though in a primitive, vague, undifferentiated state, in the old. But admitting also the "creation" of new forms with the progress of evolution, may we not sometimes regard the mechanical forms of activity as being really a degradation of still higher forms? Because electrical energy is the only energy in which that of the nervous system reveals itself to us, can we deny the possibility that this is a degradation of some higher, what I may term "psycho-neural," energy, which assumes a more psychical character in the highest levels of the nervous systems of the most highly organised individuals, whose wider and more plastic areas are more complexly integrated together to function as a single entity?

These are among the problems which seem to be worthy of consideration in the broader study of consciousness.

OBESITY IN CHILDREN,

WITH SPECIAL REFERENCE TO CARBOHYDRATE METABOLISM AND ITS MODIFICATION BY THE ADMINISTRATION OF CERTAIN DUCTLESS GLANDS.

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CHILDREN are not uncommonly brought under medical supervision and treatment on account of obesity which is of no common order, but gross in its degree and associated with a soft, velvety texture of the skin, gynæcomastia, prominently feminine conformation of the body, and placidity of temperament. These features often lead to a diagnosis of dyspituitarism on quite insufficient grounds, and in many cases the onset of puberty is accompanied by loss of fat and development thereafter on ordinary lines. In other cases, stunting of growth, mental backwardness, and genital hypoplasia provide the classical syndrome of Fröhlich, while in still others there is skeletal overgrowth described by Cushing. Of the last eight cases under our observation, four have been of boys and four of girls. The sexual development of two of the girls, aged 9 and 13 respectively, has not been ascertained, but that of two of the boys, judged by the external sex organs, is obviously rudimentary. The other two boys are well above the usual height for their age, and the same is true of two of the girls. One of these, aged 10, is 4 ft. 7¼ in. high and weighs just under 9 st.; the other, aged 13, is over 5 ft. high and weighs 12 st. 13½ lb. In both menstruation has begun. No malady preceded the obesity, except in the case of the precocious and overgrown girl aged 10, in whom it began after encephalitis lethargica. Cases having a like relationship were referred to by Prof. A. J. Hall in his Lumleian lectures (1923).[1]

Endocrine Glands in Relation to Obesity in Children.

Against accepting cases of obesity of this nature in children too readily as examples of dyspituitarism, it may be argued that obesity alone will provide the gynæcomastia, the "pudding face," and the feminine contours. When, however, the obesity is accompanied by disordered physical or mental growth, whether in the direction of retardation or the reverse, there is more reason for regarding it as other than exogenous and for looking to the endocrine glands for an explanation. It is known that defects of the hypophysis may be found in cases of obesity, whether accompanied by infantilism or by precocious growth, and again, that by ligaturing the stalk of the gland, or dividing it in young animals, hypoplasia of the gonads may be caused. Nevertheless, in clinical medicine it is difficult to assess the part played by other ductless glands in the altered economy. How far, for example, is the hypogenesis of the sex glands responsible for the obesity or for the overgrowth when it occurs? We know that obesity is often a feature of the end of the climacteric, and that eunuchs are apt to be magnificent specimens of humanity in stature and muscular power. Of the rôles played by the thyroid, the pancreas, or the suprarenal glands in this disorder we are ignorant, and, despite much valuable work, uncertain of the precise functions of the several parts of the hypophysis itself. A tumour of the anterior lobe cannot fail to compress the posterior, whilst an experimental lesion cannot be performed on one lobe without affecting the other. A discussion on the inter-relations between the different parts of the gland and between the whole gland and other ductless glands, takes us into the region of hypothesis, where much is proposed and little substantiated.

Obesity of the kind under consideration may be due to a pituitary tumour, which, if it is large enough, provokes its particular signs of pressure, notably bitemporal hemianopia. The diagnosis does not remain in doubt in such cases, but they represent only a very small proportion. In none of the eight cases were these signs present. To inculpate the pituitary gland, two other signs are often sought—changes in the pituitary fossa as seen by Röntgen rays and increased tolerance for carbohydrates. Radiographic evidence is more often lacking than not, and was only forthcoming in two of our cases, the radiograms showing reduction of the size of the fossa in one case and enlargement in the other. The absence of changes in the fossa in the others calls for no comment, for, except in the presence of a tumour or when the functional capacity is below normal from want of full development of the gland during fœtal life, no change in the size of the fossa would be expected.

Carbohydrate Tolerance in Obesity.

In all the cases the usual test for carbohydrate tolerance has been employed, various doses of sugar up to 300 g. having been given by the mouth, and the urine subsequently examined for glucose. No glycosuria resulted even with the large doses, except in one case (Case 3 below). Might not a similar result occur in exogenous obesity alone, for such patients often eat carbohydrates in excess and obviously store them? In any case the validity of the test is rendered somewhat dubious by the pronouncement of MacLean,[2] that no amount of ingested sugar will cause glycosuria in a normal person. Against this, however, it must be stated that when equally *large* amounts of sugar were given to other children, comparable in age or in weight, glycosuria resulted.

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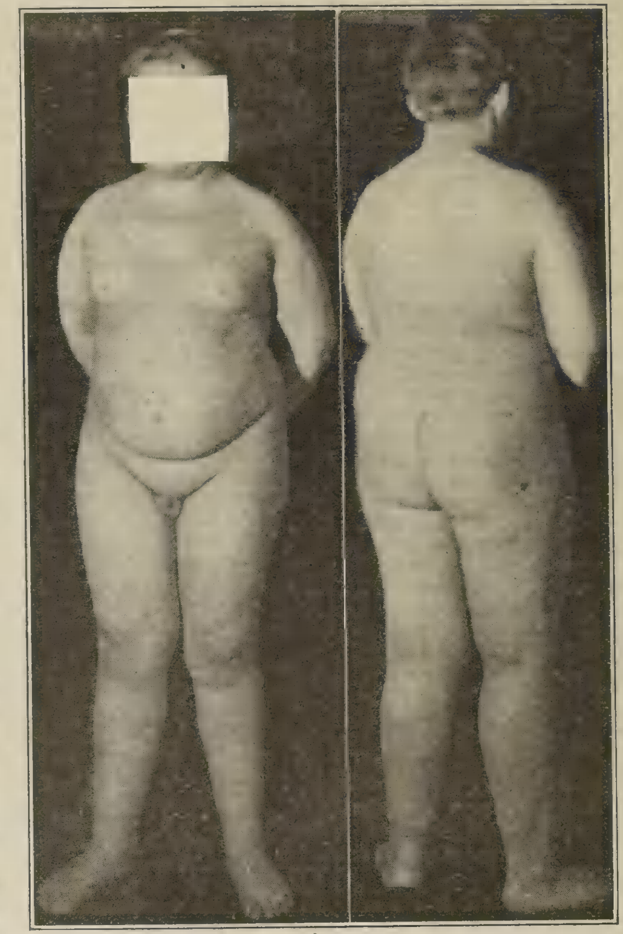
[1] Hall, A. J.: THE LANCET, 1923, i., 731.

Modern biochemical methods of examining the blood permit the study of carbohydrate tolerance in greater detail, and several cases such as ours have been investigated in this way. The blood-sugar curves, after ingestion of known amounts of sugar, have not been found to resemble each other closely or provide any characteristic form in cases of reputed dyspituitarism. This examination has been carried out in our cases, doses of from 50 to 220 g. of sugar having been administered and the blood-sugar values estimated at quarter- or half-hourly intervals and plotted out. Our results have agreed with those of others, the curves obtained having variable features, though all deviated from the normal to a greater or less extent.

In view of the various endocrine defects which might explain the combination of obesity with infantilism or with overgrowth and premature development, it occurred to us that useful information might be obtained by determining the manner in which the blood-sugar curves could be modified by the administration of certain ductless glands. Four cases were selected for this purpose, and were those of three boys, aged 10, $11\frac{1}{2}$, and 14 respectively, and of one girl, aged 13. In the two younger boys the obesity was accompanied by genital hypoplasia, but there was no mental backwardness, whilst the eldest boy and the girl were examples of obesity with overgrowth, with normal sex development.

FIG. 1. FIG. 2.



CASE 1.—F. X., aged 10, obesity with genital hypoplasia.

Case Records.

The main features of the cases may thus be briefly summarised :—

CASE 1 (Figs. 1 and 2).—F. X., male, aged 10. He shows the usual features of the pudding-faced type of dyspituitarism, so named by Fearnsides. Weight 11 st. $11\frac{1}{2}$ lb. Mentally not backward, good-natured, talkative. Sexual development: diminutive penis, left testis undescended. Urine normal. No glycosuria after 200 g. sugar. X ray examination: pituitary fossa very small. Always a big boy, getting fatter since 6 years old.

CASE 2 (Figs. 3 and 4).—B. L., male, aged $11\frac{1}{2}$. Characteristic build, &c., of the same form as Case 1. Undeveloped sexually. Systolic blood pressure 104. Weight 12 st. Mentally bright. Scar in the neck marking an operation for a thyroglossal cyst. X ray examination: sella turcica definitely enlarged. No evidence of intracranial pressure.

CASE 3 (Fig. 5).—B. H., male, aged 14. Great obesity but less infantile in manner; feminine in build. Weigh 10 st. 12 lb. Sexual development probably normal Mentally backward. Sugar tolerance, 0·2 per cent. of suga in the urine after 120 g. glucose. X ray examina tion: pituitary fossa normal. Obesity began at 9 year of age.

CASE 4.—M. A. S., female, aged 13. Excessive growth otherwise dyspituitary appearance and manner. Mentall not backward. Weight 12 st. $13\frac{1}{2}$ lb. No glycosuria afte 220 g. glucose. X ray examination: sella turcica normal.

Method of Investigations.

The laboratory par of the work has bee done by one of u (E. G. B. C.), and th investigations carrie out have been a follows :—

1. The blood-suga curves as compared to th normal.

2. The influence on th blood-sugar curves c pituitrin, adrenalin, an adrenalin and insulin.

3. The influence on th curves of thyroid a compared with desiccat posterior pituitary lobe.

4. The relative influenc on the curves of anteri pituitary (desiccated sul stance), posterior pituita (desiccated substance whole gland (desiccate substance) and whol gland + thyroid.

5. The influence o gonadal extracts.

6. The blood-fat value

1. *Blood-suga Curves.*—50 g. glucos were given to Cases and 3, 70 g. to Case and 100 and also 220 to Case 4. All hav abnormal curves; thes have been confirmed b repeated investigatio The results are as fo lows (see also Fig. 6) :-

(*a*) Starting from fastir levels (which were norma the blood-sugar curv required a time conside ably longer than usual t reach their apices—in o case $1\frac{3}{4}$ hours and in tw others $1\frac{1}{2}$ hours; the cur of Case 3 was rather u common, a slight dip occurring between two peaks of equ height (0·145 per cent.) at $\frac{1}{2}$ hour and $1\frac{1}{4}$ hours.

(*b*) In three of the cases the altitude of the curve w less than normal—all rising to about 0·14 per cent. onl The fourth reached a normal height of 0·17–0·18 per cen

(*c*) In none of the cases did the blood-sugar regain t initial level of about 0·1 per cent. within two hours; t values at the two-hour period varied from 0·12 to 0·13 p cent.

The occurrence of varying blood-sugar curv repeats the findings of other investigators.

2. *Influence of Pituitrin, Adrenalin, and Adrenal + Insulin.*—The same quantities of glucose we given as before, and the effect on the curve was test for pituitrin ($\frac{1}{2}$ c.cm. given hypodermically $\frac{1}{4}$ ho previously), for adrenalin (♏iv.) hypodermically, an for adrenalin (♏ii.) + 6 units of insulin. (See Fig. 7 the curves of Case 1 only are shown as they are repr sentative of the others.)

(*a*) In a normal person pituitrin ($\frac{1}{2}$ c.cm.) was shown n to alter the fasting level or apex of the curve, but onl slightly to prolong its fall. The effect of the pituitrin i these cases was different (see curve B). In all four it hastened the rise of the blood-sugar; in two of these an apex of normal height was reached in normal time, in the other two the altitude was increased appreciably. The fall of the curve (or storage), as gauged by the second hour percentage, was not quite so good as with the sugar alone.

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[2] MacLean, H.: Modern Methods of the Diagnosis and Treatment of Diabetes Mellitus (Constable and Co.), 1924, p. 54.

(*b*) Adrenalin (♏iv.) in each case produced hyperglycæmia to 0·24 per cent. or over, accompanied by glycosuria; the fall of the blood-sugar was also greatly at fault, the second hour levels varying from 0·155 to 0·190 per cent. (curve C).

FIG. 3.

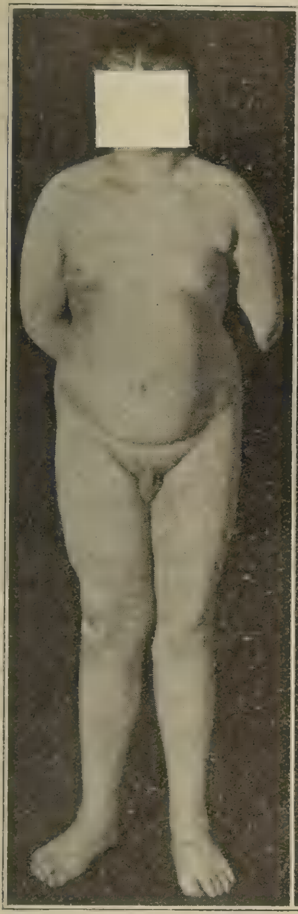
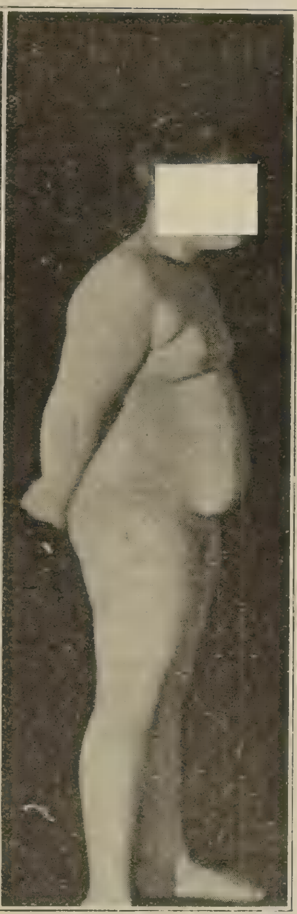
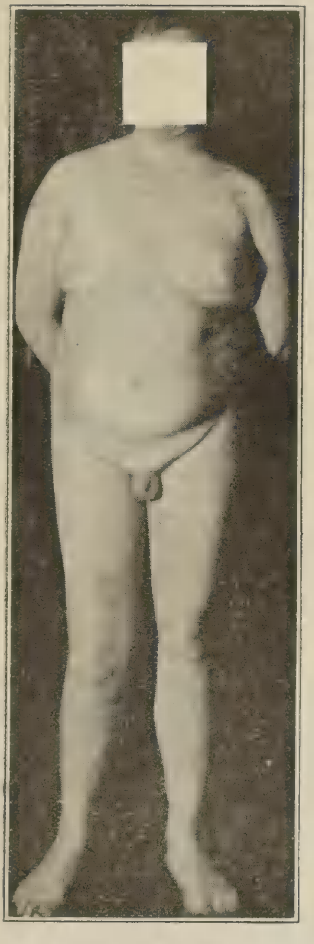


FIG. 4.



CASE 2.—B. L., aged 11½, obesity with genital hypoplasia.

FIG. 5.



CASE 3.—B. H., aged 14, obesity, normal sexually.

(*c*) Adrenalin (♏ii.) + insulin (6 units) produced in all a blood-sugar curve which was practically normal (curve D).

When no sugar was given, ♏iv. of adrenalin showed a rise to a maximum of 0·128 per cent. only, while ♏ii. gave a maximum of 0·120 per cent. only. It would appear, therefore, that the results obtained can hardly be due to a combination of the separate effects of adrenalin and sugar, but rather that adrenalin had acted merely as a fillip to some part of a sluggish carbohydrate metabolism.

3. *Influence of Thyroid compared with Posterior Lobe* (*desiccated substance*).—Case 1 is shown in Fig. 8 and Case 4 in Fig. 9.

(*a*) 2 gr. of thyroid extract (fresh gland) were given three times daily for nine days previously. This raised the fasting level of the blood-sugar to about 0·126 per cent. in two of the cases, while in the other two the level stood at 0·11 per cent. The rise of the curve was more rapid in three, but the slow fall was enhanced in all four cases (see B, Fig. 8). The effects are, therefore, similar to those in normal persons as regards the fasting level and the fall of the curve.

(*b*) Posterior pituitary, desiccated substance, gr. ii., thrice daily for 27 days, led to a blood-sugar curve practically normal in Cases 1 (see C in Fig. 8) and 2. It is interesting that these cases appeared also to be benefited clinically by the posterior pituitary substance, that both show changes in the sella turcica by X rays, and are infantile sexually. In Cases 3 and 4 (see C in Fig. 9) the fall in the blood-sugar value was made slower instead of more normal, and no benefit derived clinically, though in Case 4 the rise in the blood-sugar was accelerated.

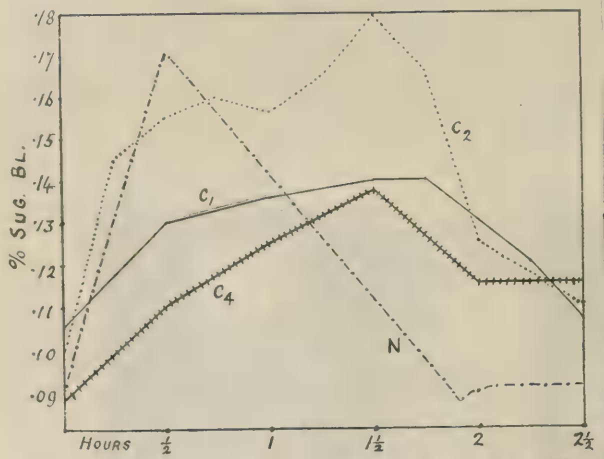
4. *Relative Influence on Blood-sugar Curves of Anterior Pituitary Desiccated Substance, Posterior Pituitary Desiccated Substance, Whole Gland, and Whole Gland + Thyroid.*

(*a*) Anterior pituitary, desiccated substance, gr. 7½, was given thrice daily for four weeks to each. In the two boys (Cases 1 and 2), who were benefited by posterior pituitary substance and whose blood-sugar curves were made normal by it, the effect of anterior pituitary substance was distinctly less beneficial (compare A and B in Case 1, Fig. 10). The blood-sugar curve of the other boy (Case 3) was made normal by the anterior pituitary substance, though the posterior pituitary had had little effect (see A and B in Fig. 11). In the case of the girl (Case 4) both extracts had the same action on the curve, the rise being improved and the fall made worse.

(*b*) Whole gland, 6 gr., thrice daily was also given for four weeks. It provided a blood-sugar curve which showed that its effect was between that produced by anterior and posterior lobe substances in the three cases (1, 2, and 3) in which one or other of these had led to a normal curve (Figs. 10 and 11). In the case of the girl (Case 4), where each separately had hastened the rise and delayed the fall, the whole gland produced a curve representing a summation of these actions.

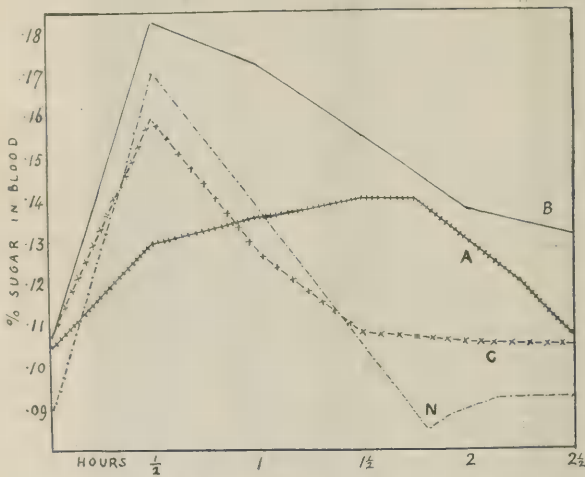
BLOOD-SUGAR CURVES.

FIG. 6.



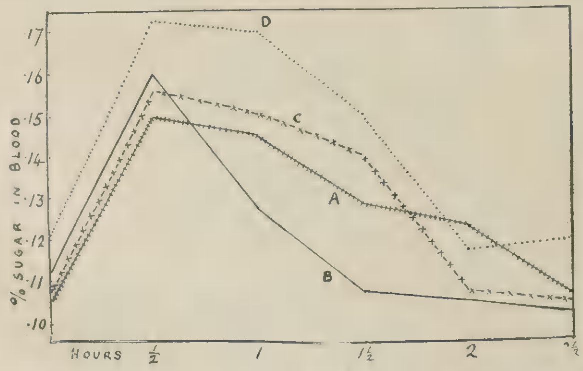
N = normal curve when 50–100 g. glucose are taken. C_1 = Case 1: 50 g. glucose taken; N.S.U. (= no sugar in urine.) C_2 = Case 2: 70 g. glucose taken; N.S.U. C_4 = Case 4: 100 g. glucose taken; N.S.U. [220 g. glucose gave practically the same curve, N.S.U.] The curve of Case 3 is not given to avoid crowding the chart.

FIG. 8.



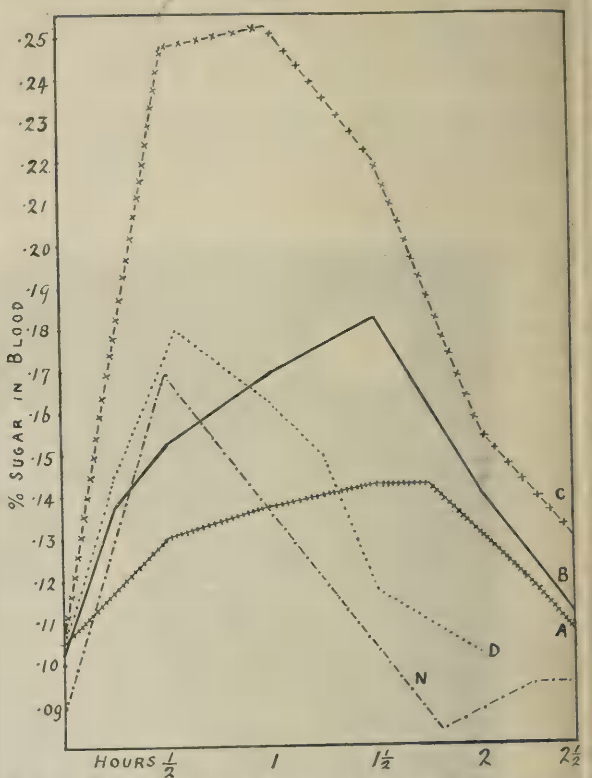
CASE 1.—A = 50 g. glucose. B = 50 g. glucose, thyroid, gr. ii., given t.i.d. for 9 days previously. C = 50 g. glucose; post-pituitary (desiccated substance), gr. ii., t.i.d. for 27 days previously. N = a normal curve. (N.S.U. in A, B, or C.)

FIG. 10.



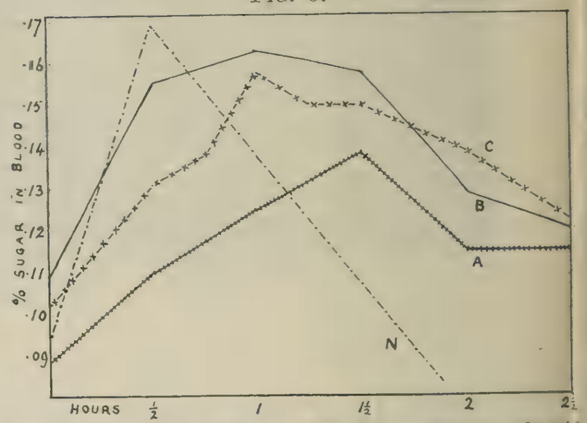
CASE 1.—A = 50 g. glucose; anterior pituitary, desiccated substance (P., D., and Co.), gr. viiss., t.i.d. for 4 weeks previously. B = 50 g. glucose; post-pituitary (desiccated substance, Carnrick), gr. ii., t.i.d. for 27 days previously. C = 50 g. glucose; whole-gland pituitary (desiccated substance, B. W., and Co.), gr. vi., t.i.d. for 4 weeks previously. D = 50 g. glucose; whole-gland pituitary, gr. iv., + thyroid, gr. ½, t.i.d. for 4 weeks previously. (N.S.U. in A, B, C, or D.)

FIG. 7.



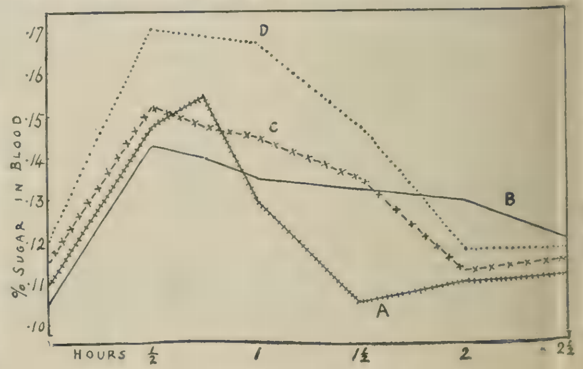
CASE 1.—A = 50 g. glucose (see C_1, Fig. 6). B = 50 g. glucose + ½ c.cm. pituitrin ¼ hour previously. C = 50 g. glucose + ♏iv. adrenalin. D = 50 g. glucose + ♏ii. adrenalin + 6 units insulin. N = a normal curve to 50 g. glucose. (0·6 per cent. sugar in urine in C; none in A, B, D.)

FIG. 9.



CASE 4.—A = 100 g. glucose. B = 100 g. glucose; thyroid, gr. ii., given t.i.d. for 9 days previously. C = 100 g. glucose; post-pituitary (desiccated substance), gr. ii., t.i.d. for 27 days previously.

FIG. 11.



CASE 3.—Description of figure as Fig. 10.

(c) When gr. ½ of thyroid was added to the whole gland the curves (D in Figs. 10 and 11) were found to be at a slightly higher level than when whole gland was given alone in the case of the patients whose blood-sugar curves were made more normal by pituitary. In the other case, where pituitary had caused no improvement in the fall of the curve, this small dose of thyroid seemed to show a beneficial effect.

5. *Gonadal extracts*, using for testicular extract: "Didymin" gr. v., and for ovarian: "Ovarium" gr. v., had no effect.

6. Two of the children (Cases 1 and 4) have been taking a so-called "protein" diet (as fat-free as possible) for four weeks. The possible influence of the amount of blood-fat on carbohydrate metabolism was imperfectly appreciated before the dieting was begun, and unfortunately no blood-fat value estimated. After the dieting the blood-fat in each was within normal limits (about 0·60 per cent. whole-blood total fat), and the blood-sugar curves showed practically normal ascents and apices, but the fall of the curves, though improved, was not yet normal. The dieting was accompanied by loss of weight in both cases, slight in one and as much as 1 st. 5 lb. 2 oz. in the other. Another patient (Case 2), who had continued with his usual diet, gave a blood-fat value of 0·67 per cent. The blood in each case was taken 13 hours after the last meal.

Experiments with Gonadal Extracts.

A preliminary note may be made here of work that is being done in connexion with the sexual infantilism of some of these cases. Bearing in mind the facts: (1) that in the type of obesity just described defect of the genitals is often an outstanding feature; (2) that the administration of the usual gonadal extracts is practically of no value; (3) that Banting has succeeded in the case of the pancreas in separating the internal and external secretions, it was thought worth while to apply the alcohol-fractional-precipitation method, devised by the Toronto School for the preparation of insulin, to the testes of animals in an attempt to isolate their internal secretion for therapeutic purposes.

12 lb. of bulls' testes were extracted with 5 litres of 95 per cent. alcohol, and 5 litres of the filtrate were made up to 8 litres with 95 per cent. alcohol. Further filtration gives a perfectly clear yellow solution. The alcohol was distilled off in vacuo until the residue reached about 200 c.cm. volume. The fat was removed by ether in a separating funnel, and the clear aqueous solution made up to 80 per cent. alcohol by the addition of absolute alcohol. After 24 hours a yellowish syrupy deposit separated out, and the decanted fluid, now free from protein and perfectly clear, had sufficient absolute alcohol added to it to make the alcohol content up to 93 per cent. A marked milky turbidity resulted as in the case of the preparation of insulin from pancreas. In the course of 24–36 hours a considerable granular deposit was obtained by decanting off a colourless, supernatant fluid. This deposit was collected and washed with absolute alcohol and ether in the centrifuge, and finally dried and preserved in a desiccator.

The amount obtained weighed 2·5 g. The substance is readily soluble in water, forming a light yellowish solution. Subcutaneous and intravenous injections were given to rabbits. Even large doses failed to produce any lowering of the blood-sugar level, this proving that the substance does not contain anything of the nature of insulin. No metabolic disturbance was noticed. In the human similar results were obtained.

Owing to obvious difficulties in investigating the effect on metabolism of a product of this sort—especially if it be considered to represent the internal secretion of the testes—it was decided to test the limited stock of the preparation on one of the above patients over a prolonged period. For this purpose the boy B. L. (Case 2) was admitted to the Unit wards on Dec. 10th, 1923. The dose to be given could not be other than empirical. From admission until the beginning of August, 1924, he received daily ½ c.cm. doses of the extract, equivalent to 10 mg. of the dried deposit. It is too early to remark on any changes in sexual development. Mention will be made only of the effect on weight.

From Dec. 10th, 1923, to Jan. 21st, 1924, there was a steady reduction from 12 st. to 10 st. 6 lb. 12 oz., the patient meanwhile taking a full mixed diet. At the latter date the administration of 6 gr. whole pituitary gland (desiccated substance) thrice daily was begun in order to ascertain whether the loss in weight would be accelerated thereby. Judging from the rate of continued reduction in weight—his weight on March 13th, 1924, was 9 st. 8 lb. 10 oz.—one can only conclude that the added effect has, at most, been slight. The pituitary extract has shown, however, a beneficial effect on carbohydrate metabolism, as noted by the correction of the slight delay in fall of the blood-sugar curve that existed. The patient's general health has been well maintained. His weight has fallen steadily and his appearance has become more normal. The other two boys (F. X., Case 1, and B. H., Case 3) have been used as controls, both receiving full diet but no medicinal treatment. Each has gained about 7 lb. in weight during the same period.

Summary.

1. We have found, as others have found before, that the blood-sugar curves in cases of great obesity in children—too readily called hypopituitarism—are diverse in their outlines.

2. In the two cases in which the diagnosis of hypopituitarism is most substantiated (Cases 1 and 2) posterior pituitary substance led to a normal curve; this favours the view that in cases of hypopituitarism it is the posterior lobe which is chiefly concerned with the altered carbohydrate metabolism. Its extract pituitrin, however, had less influence.

3. In a third case (Case 3), with more normal general development and with normal sexual development, the anterior lobe was that which had the correcting effect.

4. The slightly inferior influence on the blood-sugar curve of the whole gland substance in the above three cases appears to indicate that in these cases the good effect on carbohydrate metabolism obtainable by giving the appropriate gland substance may be counteracted to some extent by combining it with the extract of the other lobe.

5. Incidentally, these experiments appear to show that pituitary gland substance given by the mouth is not inert. As far as carbohydrate metabolism goes, the blood-sugar curve being used as an index, it seems logical to administer that lobe of the pituitary which produces the better effect on sugar tolerance. However, considering the cases generally, it will be noticed that the whole gland gives quite good results. In one case the addition of a small dose of thyroid improved matters. The results of the experiments, taken collectively, might be construed as indicating that a properly balanced pluriglandular therapy is required for cases such as these; the suggestion has a pharmacological rather than a physiological basis.

6. Thyroid extract may reduce weight in cases of this kind, but it can hardly be considered an ideal remedy per se, in that it does not restore carbohydrate metabolism to normal.

7. Possibly the production of a normal blood-sugar curve may prove a useful guide to treatment, since when this happened with pituitary substance the patient's condition improved generally.

8. Possibly, too, a somewhat restricted diet, in which the protein is relatively increased, the carbohydrate curtailed, and the fat practically eliminated, may constitute one of the most effective means of stimulating metabolism and reducing weight.

9. The method of preparation from the testes of animals of what may possibly be their internal secretion is described, and also the very considerable loss in weight associated with its administration in one of the above cases.

These investigations are incomplete, and the suggestions put forward concerning the results obtained must only be regarded as tentative.

SPLENECTOMY IN EGYPTIAN SPLENOMEGALY.

SEVENTY CASES.

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AND
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Very full and clear descriptions of Egyptian splenomegaly and its treatment by splenectomy have been published by various members of the staff of the Government hospital at Cairo, to whom we wish to express our indebtedness for putting the operative treatment of this disease on a satisfactory basis.[1][2][3][4] Mayo[5] and Moynihan[6] have interesting papers on this subject.

Distribution and Incidence.

Our patients at Old Cairo, to the number of 20,000 yearly, come from all parts of Egypt, and we have also three continuous clinics in the western Delta, and have held three-monthly clinics in the central and eastern Delta, and also immediately south of Cairo. As far as our experience goes we are of opinion that splenomegaly is most common on the eastern side of the Delta and diminishes as we pass to the western side, and further diminishes as we pass from Cairo southwards through Upper Egypt. The great majority of our operation cases come from two well-defined areas, one near Zagazig and the other near Dekernes, both in the eastern Delta. It is difficult to decide whether this is mainly due to recommendations of old patients, or indicates a specially high incidence of the disease in these centres.

Age of Incidence.—This is mainly in the second and third decades. The average age of our operation cases is 19 years, and the limits are 8 and 40 years. We have not found any indication of seasonal variations, as has been suggested by Richards.[3] We see many cases of ascites (of which a considerable proportion are terminal stages in Egyptian splenomegaly) between the ages of 20 and 30 years. In other words, most patients suffering from splenomegaly develop extreme cirrhosis of the liver within a few years. Of our 70 operation cases 13 only were female. We are of opinion that this disparity is not entirely to be accounted for by the greater readiness of men than of women to seek medical aid, but is an indication of a real difference in sex incidence. It is interesting to remember in this connexion that bilharziasis is much more common in the male than in the female in Egypt, and possibly there may be some causal relation between bilharziasis and splenomegaly, as Dr. J. B. Christopherson has suggested, though it has not been possible to prove bilharzial infection in all our operation cases.

The Blood.

In most cases the blood picture was examined after the treatment of concurrent ankylostomiasis and bilharziasis, though occasionally splenectomy was performed after only 15 gr. of sodium antimony tartrate had been given intravenously. Our typical red cell count is 4,000,000 and the colour index 65, while the leucocyte count is between 3000 and 4000. The differential white cell count is about normal. Any considerable degree of leucocytosis has been regarded as a contra-indication to operation, yet we believe there is often a moderate leucocytosis early in the disease, and in view of this we have removed spleens from ten patients whose white cell counts varied from 7000 to 10,000 with results as good as in the cases with a leucopenia. During the four years covered by this report we found a leucocytosis in 32 other cases of splenomegaly with an average count of 13,600, the range of counts being between 10,000 and 24,000. Only two cases of leukæmia were discovered with counts of 4,408,000 reds and 520,000 whites, and 3,116,000 reds and 306,800 whites respectively.

Summary of Cases.

Since the year 1920 splenectomy has been advised in all suitable cases. Of those seen in our out-patients' department quite a number, probably 50 per cent., are refused for operation at once owing to definite contra-indications—e.g., considerable ascites, pellagra, disease of the heart, and advanced general debility. The remainder are advised admission for observation and further examination, and the majority agree to this. Most are suffering from ankylostomiasis and bilharziasis, either rectal or urinary, and these diseases are treated before the blood is examined. Less than half of these thus admitted come to operation—frequently there is some leucocytosis, or some other contra-indication is discovered, and a certain number grow impatient at what they consider the long unnecessary preliminary treatment (two or three weeks or more) and go home. Altogether we have done 70 cases—11 in 1920, 29 in 1921, 13 in 1922, and 17 in 1923.

Operation.

An injection of pneumococcal vaccine is given in every case the night before operation. In the average case we do not now consider the operation a difficult one, and have twice done three cases in a morning's list. We have little to add to the other descriptions of the operation for removal of enlarged spleen. Our incision is through the left rectus, and wherever possible the spleen is delivered through the wound before ligature of the pedicle. Sometimes this is almost impossible owing to adhesions or width of pedicle. At first we found several cases (not included in this number) where we did not deem it wise to remove the spleen owing to the strength of its adhesions to the vault of the diaphragm, but latterly we seldom find a case where these cannot safely be broken down.

We have learned from experience to know beforehand from the shape of the spleen which are difficult cases. A spleen very long from above downwards usually means a long pedicle, and can easily be tackled piece by piece; but a broad spleen, extending medially beyond the middle line, means a thick bunched-up pedicle in which the vessels are difficult to reach and secure individually. In these latter cases we throw a ligature round the whole pedicle, or at any rate the main mass of it, and after cutting off the spleen we tie the gaping ends of the vessels separately. Occasionally the tail of the pancreas is very closely involved in the pedicle, and once or twice in difficult cases the tip of this organ has been included in the ligature and removed, but no bad results have ever been seen from this. All our cases are anæsthetised with chloroform, preceded by an injection of morphia and atropine, and a rectal saline is given directly they are returned to the ward and repeated at intervals. There has been no serious trouble with hæmorrhage in any of our cases. There have not been any immediate fatalities, and the patients generally leave the table with a good steady pulse. The spleens removed have varied in size from 1¼ lb. to 12½ lb., the average being 3¾ lb. for the series.

Mortality.

The only other published results in this country which can be traced are those from the Egyptian Government hospital, which report 43 cases by various surgeons with nine deaths, a mortality of 20·9 per cent. In our series the total mortality has been 11, which is 15·7 per cent. The mortality in the first 40 cases was only 10 per cent., but this was unfortunately increased in the following 30 cases by the loss of two or three cases unexpectedly in 1923. Nearly all the deaths occur between the second and fourth day. One died ten hours after operation, due apparently to a ligature slipping as a result of violent vomiting and coughing. Two cases were lost through pneumonia, but this danger has been wonderfully lessened by the routine use of pneumococcal vaccine as a prophylactic. Most of the deaths were presumably due to a type of late shock in which the patient never seems to rally from the operation. There appears to be some unknown factor in certain cases of this disease when the heart, apparently normal, suddenly gives way, causing a quick and fatal collapse. This occurred recently in a patient who collapsed on the very day fixed for his operation, shortly before he was due to be taken to the operating table. This may help towards explaining some of the unexpected deaths. It is hoped that a further series of cases will show a still smaller mortality.

After-results.

It is very difficult to follow up cases among the Egyptian villages, but considerable trouble has been taken in attempting to do so. A fair number of old splenectomy cases have been traced and examined, and these have nearly all been found well and strong, many of them exceptionally so. In none of them has there appeared any sign of ascites—one of the late symptoms of the disease when left to pursue its course without operation.

Conclusions.

1. That splenectomy is the most satisfactory treatment of Egyptian splenomegaly.
2. That great care is essential in the selection and preparation of cases.
3. That the mortality is still high, but untreated cases so early develop extreme ascites that the operation is justifiable.
4. That a small degree of leucocytosis is not necessarily a contra-indication to operation.

Our thanks are due to our senior colleague, Dr. F. O. Lasbrey, for his coöperation in the work, his 14 operations being included in the above.

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THE EFFECT OF
SPLENECTOMY ON THE PRODUCTION OF EXPERIMENTAL PURPURA.

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NUMEROUS observers have been struck by the large number of platelets which are present in the spleen. One has only to tease up a portion of this organ in citrate saline and examine the preparation, stained or unstained, to be convinced of this. In the course of some recent work on the genesis of the platelet (Bedson and Johnston, in the press) this fact was brought out in another and rather more striking manner. An anti-spleen serum had been prepared, and it was found that this serum, like anti-platelet serum (Ledingham, 1913 [1]), was capable of producing typical purpura hæmorrhagica in the animal. This purpurigenic power has been shown to be specific to platelet antibody (Ledingham and Bedson, 1915,[2] Bedson, 1922 [3]), so that from this it follows that the anti-spleen serum contains platelet antibody. The spleen, therefore, contains platelet antigen either in the form of the mother cells of the platelet, or mature platelets or both, and since suitable control experiments showed that this fact could not be explained by the free blood contained in this organ, one is left with two alternative explanations: (1) The spleen is rich in platelets because it produces these elements; (2) or the platelets collect in this organ, most probably with a view to their destruction.

Against the first hypothesis must be ranged the observation of Hess (1917)[4] that splenectomy in man results in an increase in the number of platelets in the circulating blood. A similar observation has been made by Crawford (1924)[5] in a case of acholuric jaundice, and recently, both in this country and in America, splenectomy has been performed in cases of purpura hæmorrhagica, with beneficial results. (For a review of the literature on this subject see THE LANCET, 1924, ii., 229.) It was thought that it would be of interest to determine in greater detail the effect of splenectomy on the platelet content of the blood, and further, the effect of this procedure on the course of experimental purpura produced by anti-platelet serum, in the hope of throwing some light on the rôle played by the spleen in the mechanism of this disease.

EXPERIMENTAL DETAILS.

A. *Effect of Splenectomy on the Platelets of the Blood.*

1. *Immediate Effect.*—Guinea-pigs were splenectomised, platelets counts being made before and at intervals after operation. Control animals underwent laparotomy only. The immediate result of the removal of the spleen was an immense increase in the platelet count. As soon as two days after operation the count had in many instances doubled, these high figures being maintained for at least ten days. No rise was observed in the controls. The result of the first experiment is given in Table I.

TABLE I.

Time of observation.	Platelets per c.mm.—		
	G.-p., S. 2.	G.-p., S. 3.	G.-p. (control).
Before operation ..	682,000	609,000	876,000
	Splenectomy.		Laparotomy.
3 days after.. ..	1,340,000	1,284,000	740,000
10 ,, ...	1,593,000	1,360,000	543,000

G.-p. = Guinea-pig.

A similar increase in the platelet count has invariably been found to follow splenectomy, but no qualitative changes have been demonstrable in these elements.

2. *Duration of the Platelet Increase Following Splenectomy.*—The next point determined was the length of time that this rise lasted. It was found that three to four weeks after operation the count had fallen again to normal, as is shown by the following example (Table II.).

TABLE II.—*Guinea-pig, S. 6.*

Time of observation.	Platelets per c.mm.	Time of observation.	Platelets per c.mm.
Before splenectomy..	671,000	After splenectomy—	
Splenectomy	—	9 days	1,925,000
After splenectomy—		14 ,, ...	1,319,000
2 days	1,225,000	16 ,, ...	1,237,000
7 ,, ...	1,425,000	22 ,, ...	784,000

It must be obvious from these findings that the spleen plays little or no part in the production of platelets in normal extra-uterine life. On the other hand, the observed facts find a ready explanation on the assumption that the spleen is concerned with the removal of the effete platelets from the circulation and their ultimate destruction. On this hypothesis splenectomy would upset the balance between production and destruction and, as we know that the platelets are produced rapidly, this results in an immense increase in the platelet content of the blood in a very short time. Soon this function of the spleen is taken on by the phagocytic cells of other portions of the reticulo-endothelial system, the balance is once again restored and the platelet count falls to normal. Should this view be correct, then an interesting question arises: What is the rôle played by the spleen in the production of purpura? The immediate benefit of splenectomy in this condition, as evidenced by the disappearance of hæmorrhages, would indicate that it is in some way concerned with the mechanism of purpura. Is the spleen necessary to the production of this condition? In destroying the injured platelet does it liberate some toxic factor which acts on capillary endothelium, producing the lesions necessary for the occurrence of hæmorrhage? Or is the effect of splenectomy merely indirect, the increase in the number of circulating platelets being the important factor? The following experiments provide the solution to this question.

B. *Effect of Anti-platelet Serum in Splenectomised Guinea-pigs.*

This was first of all investigated in guinea-pigs which had recently had their spleens removed and which still had high platelets counts. They were given a dose of anti-platelet serum which invariably gave rise to typical purpura in normal animals of the same weight. It was found that though the serum was still capable of destroying the platelets in the circulation of splenectomised guinea-pigs, the majority of these animals showed *no hæmorrhages whatever*, whereas normal animals of the same weight and receiving the same dose of serum developed severe purpura. The findings in the first experiment are given in Table III.

TABLE III.

Date in 1924.	G.-p., S. 2 (350 g.).	G.-p., S. 3 (345 g.).	G.-p., S. 7 (control) (350 g.).
	Platelets.		Platelets.
21/5	682,000 Splenectomy.	609,000	— —
30/5	1,593,000*	1,360,000*	—*
31/5	30,000 No purpura.	22,000	None seen. Very severe purpura.

* 0·5 c.cm. anti-platelet serum intraperitoneally.

The protection to anti-platelet serum is, however, merely relative, as some of the splenectomised animals which had received 0·5 c.cm. of the serum showed a moderate degree of purpura. As will be seen from Table IV., which summarises these experiments, five out of eight of the splenectomised guinea-pigs showed no purpura at all, whereas all seven control animals presented typical findings.

TABLE IV.

Final result.	Guinea-pigs— Splenectomised.	Guinea-pigs— Normal.	Final result.	Guinea-pigs— Splenectomised.	Guinea-pigs— Normal.
No purpura.	5	—	Severe purpura..	1	2
Mild purpura..	1	1	Very severe purpura..	—	4
Moderate purpura..	1	—			
Total				8	7

All animals were approximately of the same weight. All received 0·5 c.cm. anti-platelet serum intraperitoneally.

In the next experiment (Table V.) a series of four splenectomised guinea-pigs received increasing doses of anti-platelet serum.

Here, again, the protection afforded by splenectomy is demonstrated, but the fact that it is not absolute is equally obvious. The series is somewhat spoilt by the fact that guinea-pig S. 10, which only received a dose of 0·5 c.cm., developed purpura. It must be pointed out, however, that this animal was the smallest, and was thin and in poor condition at the time of experiment. Leaving aside animal S. 10, it will be seen that by increasing the dose of anti-platelet serum the protection is overcome, though even S. 12 and S. 13 were to a certain degree protected, because they showed only moderate degrees of purpura with doses as large as 1·0 c.cm. and 1·25 c.cm. What, then, is the explanation of this protection? It has been shown (Bedson, loc. cit.) that two factors at least are essential to the production of experimental purpura: (1) absence or almost complete absence of platelets from the circulation, (2) some lesion of the capillary wall (endothelium).

TABLE V.

Date in 1924.	Splenectomised guinea-pigs. S. 10 (290 g.).	S. 11 (300 g.).	S. 12 (330 g.).	S. 13 (300 g.).	Normal guinea-pigs. S. 16 (310 g.).	S. 17 (325 g.).
	Platelets per c.mm. (Reckoned in thousands.)					
19/6 ..	1238 0·5*	1234 0·75*	1141 1·0*	1080 1·25*	728 0·5*	651 0·5*
20/6 ..	—† Mild purpura.	361 No purpura.	—† Moderate purpura.	—†	—† Very severe purpura.	—†

* c.cm. anti-platelet serum intraperitoneally.
—† = no platelets seen.

Further, experimental findings indicate that, on the introduction of anti-platelet serum into the animal body, the platelets are the first elements acted upon. Should the dose given be in excess of that required to destroy the circulating platelets, then the unused portion acts on the endothelium of the small vessels, producing that other change essential to the production of purpura. Thus in rabbits, using the intravenous route, it is possible so to grade the dose of anti-platelet serum as to produce partial destruction of the platelets of the blood without purpura, complete removal of the platelets again without purpura, and finally with a larger dose still complete destruction of platelets together with purpura. It would appear, then, that the protection afforded by splenectomy to anti-platelet serum was merely due to the increased number of circulating platelets. A dose of serum which in the normal animal would be sufficient to destroy the platelets and act on the capillary endothelium as well, in the splenectomised animal would be merely sufficient to destroy or considerably reduce the platelets, leaving none free to give rise to endothelial lesions. This suggestion is already indicated as the correct one from the experimental data recorded in Table V. However, since the platelet count returns again to normal three to four weeks after splenectomy, this point could be readily settled by testing the resistance of guinea-pigs which had been splenectomised at least one month and in which the platelet counts were again normal. This has been done and the result is given in Table VI.

TABLE VI.

Date in 1924	G.-p., S. 22.	G.-p., S. 23.	G.-p., S. 24.	G.-p., S. 25.	G.-p., S. 26.
	Platelets per c.mm.			Platelets per c.mm.	
27/6	Splenectomy.	Splenectomy.	Splenectomy.	—	—
6/8	864,000 —*	827,000 —*	764,000 —*	680,000 —*	761,000 —*
7/8	Platelets absent from circulation. Severe purpura.			No platelets seen. Severe purpura.	

* 0·5 c.cm. anti-platelet serum intraperitoneally.

Table VI. speaks for itself. It is quite obvious that the guinea-pig which has had its spleen removed and in which the platelet count has returned to the normal level again, reacts to anti-platelet serum in exactly the same way as the normal animal; it enjoys no protection at all. From this it follows that the spleen itself plays no direct rôle in the mechanism of purpura, and that the protection afforded by this procedure finds its explanation in the increase in the number of platelets in the circulating blood. It would also appear that the improvement brought about by splenectomy in cases of purpura hæmorrhagica could only be of a temporary nature. As soon as this function of the spleen is taken on by some other portion of the reticulo-endothelial system, the platelets will again disappear from the circulation and the purpura will return.

Conclusions.

(1) Splenectomy gives rise to a great increase in the number of platelets in the circulation. (2) In the guinea-pig this rise is manifest 48 hours after operation, reaches its maximum about the tenth–fourteenth day, and falls again to normal in three–four weeks. (3) Splenectomy in the guinea-pig affords a degree of protection to the production of experimental purpura by means of an anti-platelet serum. (4) The spleen s only indirectly concerned in the mechanism of this pathological state. (5) Splenectomy cannot be relied n to give any but temporary relief in the treatment f purpura hæmorrhagica.

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Clinical and Laboratory Notes.

TOXIC INFLUENCES IN AN INSULIN TREATED DIABETIC.

By R. OWEN-JONES, M.R.C.S. ENG.,
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IT has been stated that insulin has little or no action pon cases showing septic absorption, but in the light f the following case it would appear that massive oses are of distinct value.

The patient, a woman of 53, had an attack of intense pain t the site of some varicose veins about 4 inches above the ternal malleolus of the right leg in February. This area ubsequently became quite anæsthetic and assumed the ppearance of a superficial gangrenous slough. The condition owly spread downwards, and on June 5th, 1924, she was dmitted to this hospital. An examination showed dry angrene of the whole of the right foot and lower part of the g, the line of demarcation being 7 inches above the internal alleolus. The heel and distal part of the great toe of the ft leg were similarly affected. No popliteal pulse could be etected on either side, and the femoral pulse was not felt the right.

Urine examination showed 2 per cent. sugar, a total of 4 g. in 24 hours, acetone and diacetic acid also being resent. The blood-sugar was 258 mg. per 100 c.cm.; on nth day Allen's diet. She was then put on starvation diet, en first day Allen's, &c., up to tenth day diet, the insulin eing increased from 10 units twice daily to 25 units thrice aily. On twelfth day Allen's diet and 25 units insulin rice daily; her urine-sugar became 0·970 and the blood-gar 153 mg. per 100 c.cm.

On July 5th she was transferred to a surgical ward under r. W. Sampson Handley, who amputated the right leg the knee under open ether anæsthesia, and performed jection of the perivascular sympathetic trunks of the left moral artery with alcohol. The patient made excellent rogress for a week. The urine-sugar then became 3·3 per nt., Rothera's test and the ferric chloride test being rongly positive, and the blood-sugar 279 mg. per 100 c.cm. The insulin was increased to 225 units daily in three doses. he patient gradually became worse and the usual stimulants d to be administered hourly. The stump-flaps now showed gns of secondary infection; superficial sloughs and a very ee purulent discharge appearing, and the entire line of ture gaped. On July 27th the prognosis was considered peless; temperature subnormal, pulse 92, and the tient showed signs of developing a fatal diabetic coma.

Energetic treatment of the infected stump with eusol resulted in the separation of a large slough on the following day, the discharge diminished, and the wound appeared markedly cleaner. On this day the urine-sugar dropped to 1 per cent. although the insulin had not been increased, and by August 2nd the amount of sugar became 0·3 per cent., 0·2 per cent., and then nil. The blood-sugar had become 158 mg. per 100 c.cm. Throughout this period the diet had been No. 1 Allen's, and the insulin dosage 225 units daily. The strength of this insulin was 40 per cent. increase on the original Toronto (human) unit (i.e., one-third of the amount required to lower the blood-sugar of a starving 2 kilogramme rabbit to 0·045 per cent. within a period of four hours).

By Sept. 1st the stump was nearly healed, the gangrenous areas on the left foot separated off, and the patient's general condition was much better than when she had been admitted. On being discharged from hospital on Sept. 4th a slight amount of sugar had appeared again in the urine, but her stump was practically healed.

The case merits description as illustrating the marked influence of a septic focus upon the sugar excretion rate in a case under the influence of insulin treatment. So far as could be ascertained at the time, and in the light of the present limited knowledge of the conditions affecting the action of insulin, there were no factors other than the elimination of the septic focus to bring about this sudden change. It might be argued that the massive doses of insulin improved the patient's condition sufficiently to produce separation of the sloughs. Against this, however, is the fact that the insulin dosage had been the same for over a fortnight with no change for the better in the sugar amounts or in the wound. The sudden change from an almost comatose condition to one where the urine was sugar-free, induced by the separation of a slough and the free drainage of the stump, shows the marked effect of absorbed toxins upon the diabetic patient.

I am indebted to the Biochemical Department under Dr. E. C. Dodds for the estimations carried out, and to Mr. Sampson Handley for permission to publish the case.

LUPUS ERYTHEMATOSUS AND ALOPECIA AREATA.*

By M. G. HANNAY, F.R.C.P. EDIN., M.R.C.P. LOND.,
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THE cause of lupus erythematosus is generally supposed to be a toxin circulating in the blood. While I believe the majority of the French school still incline to the tuberculous nature of the toxin, the opinion is growing in other countries, and is firmly established here, that many other toxins are capable of causing the disease in predisposed individuals. The ætiology of alopecia areata is even more controversial, but the toxic theory has always claimed many adherents.

Barber [1] has produced evidence which tends to show that some cases at least of lupus erythematosus are due to toxic absorption from focal sepsis, and that a *Streptococcus longus* is the organism most often at fault. In another contribution, the same observer [1] reports several cases of alopecia areata associated with focal sepsis, which he believes was the cause of the disease in those particular patients.

If toxins of various kinds may be the cause of both affections a common factor becomes possible, and it will not be surprising to find the two coexisting in the same patient. The following case is an example of such a combination:—

The patient was a woman, aged 32, who first attended hospital in August, 1921, with several small patches of lupus erythematosus of the face of 12 months' duration. The general condition was good, tonsils were not enlarged, and there was no gross oral sepsis. The patient was treated mainly by applications of CO_2 snow, calamine lotion, and, internally, iodide of mercury. In May, 1922, it was noted that the patches were paler, but fresh ones had appeared. Early in August of the same year there appeared on the scalp several typical patches of alopecia areata, which rapidly extended until more than half the total area of the scalp was completely bald. Cultures were taken from the mouth, naso-pharynx, and fæces, and growths of *Staphylococcus aureus* and *B. coli* obtained. A vaccine containing these organisms was given on August 11th, and continued in weekly doses. In October two doubtful stumps were removed. In November a streptococcus was isolated from the naso-pharynx and added to the vaccine. By this time the hair had begun to grow in all patches; it continued to grow rapidly and did not fall out again. At the same time there was a marked improvement in the face lesions of lupus erythematosus, although these did not completely disappear.

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* Readers will notice with regret the announcement of Dr. Hannay's death on p. 1154.—ED. L.

The clinical appearances of lupus erythematosus and alopecia areata are well known, and typical examples give rise to no difficulty in diagnosis. From time to time, however, cases are met with which are not typical of any familiar disease of the scalp, but which, on close examination, present features which might be regarded as intermediate between the two conditions. I have even known one case which was seen by two skilled dermatologists and pronounced to be lupus erythematosus by one of them and alopecia areata by the other. The lesions in such cases may be single or multiple, and are usually about an inch in diameter. The area is bald, or nearly so; there may be a few stumpy atrophic hairs at the margin, but as a rule typical "point of exclamation" hairs are absent. The patch may show an erythematous flush, and possibly a very slight degree of atrophy. While not showing the follicular plugs, or little pits characteristic of lupus erythematosus, each follicle remains obvious. A certain amount of pruritus may be present. Sometimes the erythema is more marked, there is slight hyperkeratosis of the mouths of the follicles, with a suspicion of a little dry scaliness, and the case passes into the category of lupus erythematosus. On the other hand, the patch may be more smooth and less erythematous, and one is able with more confidence to apply the label of alopecia areata.

A patient under my care at St. John's Hospital was diagnosed by his doctor and by my assistant as a case of alopecia areata. On examination there were areate patches in which the hair had fallen out, but there was some redness, and a very slight scaliness which caused some doubt as to the nature of the case. The lesions are acquiring the aspect of a mild lupus erythematosus.

Dr. L. Chatellier,[2] in 1922, reported an interesting case of subacute lupus erythematosus with total alopecia. The patient was a woman aged 29. In 1919 she first noticed some reddish scaly and slightly irritable patches on the scalp. The hair fell out in these patches very quickly. Eighteen months later the scalp became red, and the hair came out "en masse" within two weeks. Later on there were general symptoms, with an eruption of lupus erythematosus on the body. The scalp was bright red, but *smooth*, with no trace of seborrhœa or scaliness.

In commenting on the case, the author remarked that alopecia is rare in this connexion, but had been noted by Jadassohn, Fox, Roth, Pernet, and Verotti. In Verotti's case the scalp was smooth and not inflammatory, and he is quoted as saying that it seemed possible to meet with cases of subacute lupus erythematosus in the course of which a total alopecia develops, with or without apparent lesions of the scalp. In Short's[3] case (quoted by Pernet and included by him in his series of cases of Lupus érythémateux aigu d'emblée) the hair fell out, but there was no inflammatory reaction present in the scalp. In borderland cases or where the two diseases are frankly associated every effort should, of course, be made to find and eliminate the offending toxin.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of this section was held on Nov. 14th, Sir ARNOLD LAWSON, the President, being in the chair.

Mr. RANSOM PICKARD read a paper on the

Relation between Cavernous Atrophy and Glaucoma.

He said that his object was to show that cavernous atrophy was a distinct entity, its association with glaucoma being merely casual, not causal. Cavernous atrophy might occur without glaucoma. He detailed seven cases, none of which had any nerve symptoms apart from the condition of the optic nerves. The discs were pale where the lamina cribrosa was exposed, but not elsewhere; the vessels were not contracted. In none of the cases cited was a tension of more than 28 mm. of mercury found; in most of them it was well below this. The progress of cavernous atrophy was very slow, and it seemed to become stationary after reaching a certain degree of intensity. In distinguishing cases of the condition from those of tru glaucoma a careful study of the colour fields was very useful.

Mr. MALCOLM HEPBURN said the signs in the tw kinds of case were so similar that he would hesitat about abstaining from suggesting operation in case o a mistake being made.

Mr. G. H. POOLEY regretted that Mr. Pickard ha not given histories showing the progress of the seve cases related. A very important feature was th progress or otherwise of the condition.

Mr. LESLIE PATON referred to one undoubted cas of cavernous atrophy which had come into his experience, and that was 15 years ago, and was seen befor Schnabel wrote on the subject. The patient had bee previously under Mr. Priestley Smith's observation and he, with his well-known acumen, noted that though the condition resembled glaucoma in man ways, and had a very deep cup, it was not glaucoma The patient had myopia to the extent of 15 D. Mr Paton's first observation on the patient showed tha the field was limited to the 10° circle, and th last field taken, many years afterwards, showed n change from that.

Mr. PICKARD, in reply, said he had been trying fo years to meet with and study early cases of glaucoma and it was thus he came to recognise instances o cavernous atrophy. Several of his cases had bee carefully watched for some years, and they showed no progress. One could not tell by examinin a case whether it would be of short or long duration He did not think these cases were of commo occurrence.

Dr. FREELAND FERGUS (Glasgow) read a paper on

Miners' Nystagmus: Its Diagnosis and Origin.

He said that in ordinary cases of the conditio diagnosis was not difficult. The oscillatory movement of the eyeball were not always present, but there wer frontal and occipital headache, tremors of the head vascular disturbances, photophobia, vertigo, an usually a history of the onset of visual disturbances This, he thought, suggested a wide involvement o nerve centres. Photophobia was sometimes absent but visual acuity was practically always reduced and this latter was of considerable value in cases i which the diagnosis was doubtful. One such doubtfu case was that of a miner in a district which showe little nystagmus. This man was certified, some year ago, as having miner's nystagmus by both the examining surgeon and the referee who examined him o appeal. Recently the diagnosis was questioned and then it was found that the man's condition ha altered considerably; he was using a stick for gettin about, and was suffering from disturbance of innerva tion of some of the leg muscles. There were neither head tremors nor photophobia, but the patellar reflexes were exaggerated and ankle clonus was absent. No oscillatory movements of the eyes were evident on examination, and the positive range of convergence for the median position was excellent; but on extreme upward fixation there was definite diplopia. The pupils reacted regularly, though somewhat sluggishly, to light; there was no ptosis. There was no serious error of refraction, nor could he find tremulous movements in either eye, and their fundi were healthy. In each eye the visual acuteness was practically 6/6. There might, he said, be nystagmus with diminished visual acuteness without the case being one of miners' nystagmus. Still, given a mine-worker with nystagmus and diminished vision, the evidence of the presence of other causes of nystagmus must be satisfactory before a negative conclusion as regards miners' nystagmus was arrived at.

Visual acuteness in miners' nystagmus might be due to one of two causes, or to a combination of them. The first was, that the rapid movements of the eyes prevented the proper stimulation of the maculæ. In the second place, it must be remembered that there was, in almost all cases of the disease, considerable pain at the back of the head, and this might indicate a lesion at the pole of the occipital cortex, involving the centres concerned with visual acuteness. In one of his cases the man had excellent vision, and a certifying surgeon diagnosed the case as miners' nystagmus. With that the speaker could not agree. Only the left eye was said to be affected, and the man had been away from work four months. Diplopia was permanently present, due to an affection of the eft eye, the vision of which was 6/6 (Snellen). The man had been operated upon for ethmoidal disease. There was no photophobia, no head tremors, and the man had not seen lights appear to revolve. In certain parts of the upper field of fixation there were to be seen those jerky movements which had received the name "pseudo-nystagmus." Dr. Fergus did not consider that miners' nystagmus had yet been satisfactorily explained. It did not seem to be due to either posture or defective illumination, nor to the depth of the pit in which the men worked. He had seen cases from pits which were comparatively shallow. Dr. F. Robson, of Penarth, who had conducted an admirable statistical research, attributed it to working in certain soft kinds of coal. Still, cases of it did occur in workers on hard and bright coal. A considerable number of cerebral centres eemed to be involved in the disease and those centres were probably coördinated to each other. But the causal agent did not seem to affect any entres in the medulla or cord. He had thought it might be due to a definite and specific microorganism, and this might explain cases of the condition being more abundant in some districts than in others. n support of the idea was the fact that miners' ystagmus was accompanied by a good deal of contitutional, and even mental, disturbance. He was ot aware of any post-mortem examinations having been made on cases of the disease. If such, with bacteriological examinations, were made, much light might be thrown on the subject. The blood and erebro-spinal fluid might be examined in living ubjects. The Ministry of Health, he suggested, might rrange for a competent set of men to make a careful nquiry into the matter, including an investigation of he sanitary condition of the pits where it was revalent.

The **President** said the views and suggestions dvanced by Dr. Freeland Fergus were counter to the sually accepted ideas concerning miners' nystagmus. n discussions which had been held on the subject efective illumination seemed to be agreed upon as he main cause, and it had been stated that when he illumination of a mine was improved, the incidence f nystagmus among the workers in it diminished. The idea now advanced that it might be toxæmic, nd not a disease specially of the eyes, opened up a arge field for thought.

Dr. F. **Robson** (Penarth) pointed out that in some coal areas in Scotland there was coal-miners' nystagmus, while in other mines all the nystagmus cases were among the men working particular seams, yet all the men were working under the same general conditions as to temperature and depth. The varied incidence seemed to be attributable to the particular environment, not to personal idiosyncrasy among the workers nor to the amount of light used. Curiously no nystagmus was reported as occurring in the coal-mines of America and those of South Africa. The disease was, however, quite frequent in New South Wales, where coal was liable to spontaneous combustion, the worked coal left for even a single shift getting quite hot. He thought the liberation of CO_2 might affect the neurons by a general lowering of the worker's vitality. Usually American mines were quite shallow, some not more than 500 feet deep, and they were excellently ventilated. This could not be said of our own.

Dr. C. F. **Harford** urged that the psychology of cases believed to be miners' nystagmus, and who ceased work because of it, should be studied.

Mr. G. H. **Pooley** (Sheffield) referred to the long-continued study of the disease which had been carried out by Romiet, of Belgium, who found that after the illumination of pits was improved there was a definite diminution in the amount of miners' nystagmus. Investigations carried the lesson that claims for compensation constituted no evidence of the incidence of the disease. Statistics should be based only on an examination of all the men in the mines under review. In the condition the eye movements were always definitely undulatory, not a slow movement in one direction followed by a quick return, as seen in labyrinthine nystagmus. As to the bacterial theory, he had no doubt that coal-workers more often had wounds of the cornea infected than did steel-workers. Dealing with the psychological aspect of the subject, he said he divided the neuroses associated with miners' nystagmus into two definite groups. The first were the cases mentioned by the older writers. In these the neurosis was most intense before the man ceased work, but improved rapidly within three months of leaving the pit. But now, after men had been away six months, many developed a neurosis of a different nature, and this placed them in the second category. The longer the man was kept under observation and examination, the worse he became. He had seen cases lasting ten years who were miserable wrecks, and this he attributed to the fact that they were receiving monetary compensation.

Mr. **Harrison Butler** said he had seen several cases of well-marked miners' nystagmus with quite good vision. If errors of refraction were corrected and the test-types placed below the line of the eyes, it would be found that many of the subjects of this condition could see well.

Mr. R. J. **Coulter** (Newport, Mon.) expressed his agreement with Mr. Butler, but did not agree with Mr. Pooley that corneal lacerations in miners did badly.

Mr. **Bernard Cridland** (Wolverhampton) said one important sign of miners' nystagmus was impaired visual acuity. With regard to the idea that the condition might be due to cerebral disturbance in the occipital region, spasm of accommodation coupled with poor vision had to be taken into consideration. The close anatomical association between the centre for memory and that for vision must be remembered in considering the part played by the cerebral cortex. Prof. J. S. Haldane had ruled out carbon-monoxide poisoning as a cause of miners' nystagmus, yet the condition was absent in candle-lighted mines, but not in those lighted by lamps. If the atmosphere of a mine would not allow a candle to burn, the man who worked in it must suffer in health. The ideas put forward by Dr. Robson deserved every consideration.

Dr. J. W. **Thomas** suggested an investigation of the relationship between the incidence of miners' nystagmus and the physical characteristics of the coal face being worked. Soft coal was uniformly black and dull, reflecting practically no light. Electric cap-lamps illuminated the coal face a hundred times better than did the other kinds of lamps used underground.

Dr. Fergus briefly replied.

Exhibition of Cases and Specimens.

Mr. Basil Lang showed three patients. The first had an implantation cyst which occurred after an ordinary advancement operation. The second had, apparently, congenital pigmentation in the deep retina or the superficial choroid. The third patient received a blow over an eye and it subsequently became blind. He thought it might have been a typical choroido-retinitis.

Dr. Rosa Ford exhibited two cases of congenital ankyloblepharon—namely, in a father and his child. The father, who was now aged 34, was operated upon when 4 years of age, and at the present time experienced no disability. The child had the external canthi slit last July, and had since been able to open its eyes much better, and did not raise the lids so much in the effort to see.

Miss Ida Mann showed, by means of the epidiascope, a series of slides to illustrate the development of the eye at different stages of uterine life. She noted that in the case of the father now shown the levator palpebræ superioris was absent. Probably there was a similar absence in the child, but she was a difficult patient to examine.

Mr. A. H. Levy showed two cases of acute macular disease. The first was a boy, who at first had complained of little failure of vision, but in the ensuing three months hæmorrhage occurred, with exudate of the whole macula. The other patient was a girl, aged 18, who, in the last month, had developed a patch on the macula in the left eye, with hæmorrhage, and he was not sure as to the nature of it. Wassermann and von Pirquet tests revealed no clue to the ætiology, neither had other examinations nor the history.

SECTION OF PATHOLOGY.

A meeting of this section was held on Nov. 18th, Dr. J. A. Murray, the President, being in the chair.

Dr. Thomas Lumsden communicated some observations on

Cancer Cells in Vitro.

Normal tissue cells cultured in pure serum (pH 7·4 to 7·7) grow freely and divide by typical mitosis. Cancer cells, on the other hand, migrate very actively and enlarge individually, but they only rarely divide, and then chiefly by amitotic nuclear fission. The addition of embryo, autolysed tissue, or tumour extract does not either increase or diminish the growth of normal or tumour cells so long as the original fragment is present, except in so far as they act as buffers should buffering be required. No medium is at present available in which cancer cells can be cultivated indefinitely, but for the study of surviving tumour tissue serum is a convenient and satisfactory medium. The serum must not be kept for more than three weeks, since after that period, even if preserved in sealed capillary tubes, the serum deposits "asteroids"—i.e., stellate crystals of calcium salts of the fatty acids, and is then useless or harmful. Cancer cells surviving in serum are all actively amœboid; some degenerate rapidly setting free many naked nuclei, others progressively enlarge and become highly resistant to infections and other adverse conditions. Thus, cells which had been severely bombarded with γ radium rays for an hour and a half were uninjured thereby, and continued to move about actively for over a week. These large cancer cells still survive even if not re-fed for eight days, which indicates that they are not easily killed by their own waste products and that they need but little food or oxygen for a bare subsistence. Neither the presence of normal tissues nor of red blood corpuscles alters appreciably the behaviour of these cells in serum. In such symbiotic cultures normal tissues do not grow more actively than usual, which fact does not favour the view that cancer cells contain a special growth factor for normal tissues.

The President made a communication on

Increased and Diminished Resistance to the Induction of Cancer.

Animals in which cancer has developed spontaneously or as the result of tarring the skin are much more refractory to the carcinogenic action of tar than normal animals. If the second tarring be begun before cancer has developed from the first tarring, a second primary carcinoma can be produced in practically every case, and the time necessary is less than in the first instance—i.e., about the time the first primary carcinoma comes up the whole animal is in a state of greater susceptibility to the carcinogenic action of tar. Certain puzzling features of cancer in man (rarity of multiple primary cancer, late regional recurrence after operation and some statistical difficulties) fall into a rational sequence if we assume a phase of diminished refractoriness followed by a phase of increased refractoriness in the development of cancer in the human subject.

Mr. A. Fleming read a paper on the Effect of Various Chemicals on the Leucocytes.

MEDICAL SOCIETY OF LONDON.

The Treatment of Senile Gangrene.

A meeting of this Society was held on Nov. 24th, Dr. Eustace M. Callender, the President, being in the chair.

Sir Anthony Bowlby introduced a discussion on the treatment of senile gangrene. He said the first complete clinical description of the disease was that given 160 years ago by Dr. Percival Pott, whose name is associated with Pott's disease of the spine, Pott's fracture, and other conditions, and who was one of the teachers of John Hunter. Pott said senile gangrene was unlike the mortification from inflammation, that from external cold, from ligature or bandage, or other known and visible cause. In a few cases it made its appearance with little or no pain, but in most cases the patient felt great uneasiness through the whole foot and ankle-joint, particularly during the night, even before the parts showed any marked distemper. The first discoloured spot usually occurred at the end of one of the little toes or on the inside of one of them. From this spot the cuticle was always found to be detached, the skin beneath being of a dark red colour. The progress of the condition varied in different subjects and under different circumstances. When it spread to the upper part of the foot it was shown by tumefaction and change of colour, sometimes by vesication, but wherever it appeared one of the first marks was a detachment of the cuticle. Pott saw 20 males with it to each female, and more often in the rich than in the poor, and in great eaters than in excessive drinkers. It frequently happened in advanced life, but was by no means confined to old age. Pott thought he had observed gangrene most in those who had had flying pains in the feet which had been regarded as gout, but seldom in persons who had gout "regularly and fairly." Sir Anthony Bowlby said he would take Pott's description as the text of his remarks, since it held good to the present day as the record of a careful clinical observer.

Diffuse Obliterative Arteritis.

It was necessary to consider the forms of gangrene which were due to alterations in the calibre and in the walls of vessels, sometimes called diffuse obliterative arteritis, sometimes intermittent claudication. Cases with diffuse thickening of the vessel walls occurred in quite young subjects, and the subjects of this condition seldom lived to any considerable age. In an enormous proportion the subjects of it belonged to the Semitic race, especially those from Russia and Poland. This fact made one wonder what was the cause of this selective incidence. When in 1919 Sir

Anthony Bowlby was in New York he was told that there were under care more than a hundred such cases, many of them children, and most of them came from one of the countries named. In practically all there was a gradual closure of arteries, and not merely of the toes and feet, but of hands, fingers, nose, and ears. In intermittent claudication there was but little tendency for the disease to proceed to absolute gangrene. He knew a man with marked defect of circulation which he had had for 20 years and was no worse now than when the condition commenced. So long as this patient kept his feet up he was comparatively comfortable. Still, he could only walk a short distance without beginning to suffer pain, which soon became unbearable; he was thus largely confined to a recumbent posture.

Varieties of Senile Gangrene.

Senile gangrene could be said to occur mainly n three classes of conditions. The first was that of the old or elderly man whose circulation had never been good, who had suffered from coldness and numbness of feet, and who suddenly got a swollen, discoloured, and painful foot. That was a form not ncluded in Pott's description. The next was that described by Pott, in which the condition began in one or more of the toes, often symmetrically, but more frequently the toe or toes of one foot, thence slowly spread to another toe, and in a week or two or a month spread to another toe. As each toe became affected it shrivelled and died, but all the ime only the toes were involved. A third class of case was that in which the disease began in the toes and spread somewhat quickly from toe to toe, then, n a few days or weeks, to the foot itself.

Sir Anthony Bowlby said that, in his opinion, in every case of definite senile gangrene, one or both ibial arteries were occluded, mostly calcareous. This was not believed in by Pott. A skiagram of a case showed the arteries as calcified and well-defined ines. This calcification and occlusion of the main arteries of the leg seemed to him to be the chief cause of senile gangrene. How could the case be explained which came on suddenly? The sudden occlusion of he artery carrying a certain amount of blood had caused the sudden attack.

Management of a Case.

If this occurred in an old man it was not wise to ump to the conclusion that the condition would necessarily spread, nor that it would not. He knew cases in which a very definite opinion had been given hat amputation should be done, but that was not any more true than that a case of embolic gangrene equired that operation. The right course was to wait and see to what extent the collateral circulation was capable of dealing with the part. A very few days would decide the point. It was not a case of gangrene spreading from toe to toe, but one in which he whole foot was swollen, discoloured, and cold. Yet it might have retained its sensation, and if that were so there was no need to conclude that immediate amputation was indicated. In the second class of ase also, in which the gangrene began in a toe and pread from toe to toe very slowly, he did not hesitate to counsel waiting. In most of the cases of he kind the part was dry; it was a more serious matter if the condition was a moist one. With regard o the third class of case, he laid down for himself a ule many years ago—namely, that where senile gangrene was not limited to the toes, but spread to he dorsum of the foot, amputation should be carried ut without delay. While waiting, in the first two lasses of case, what could be done for the relief of he patient's pain and discomfort? Pott found that Peruvian bark was useless in this condition, though t was the custom to use it, and he tried, with much uccess, opium as a fomentation and in other ways. t caused the tumefaction to subside and the parts o separate with less pain. Sir Anthony Bowlby had found nothing better than opium for these cases. t dilated the capillaries and materially aided the irculation of the blood through neighbouring vessels, and so expedited the setting up of a collateral circulation to the damaged part.

Sympathectomy and Alcohol Injection.

Within recent years sympathectomy (Larish's operation) had been advocated and carried out. It consisted of clearing the trunk of its main artery in Scarpa's triangle and of all its cellular tissue, and removing the sympathetic branches. A modification by Mr. Sampson Handley consisted of the injection of absolute alcohol. Sir Anthony Bowlby had not tried those methods, and hoped they would be discussed.

It was agreed that the diseased part should be kept dry by means of antiseptic powders, which were greatly preferable to moist dressings; and that the whole limb below the knee should be kept warm and raised in bed.

The Question of Amputation.

If the first class of case (with thrombosis) did not clear up in a short time, a large, swollen and gangrenous foot would result, and it must come off. And in the third class of case, that in which gangrene began in the toes and spread to the dorsum of the foot, he counselled immediate amputation, but would like to hear the point discussed. At what level should the amputation be carried out? The old Syme operation, amputation at the ankle-joint, was not to be encouraged. It must be remembered that in all cases there was a large flap which took much nourishment, and was difficult to keep in good condition. He considered that the Syme operation for these cases had nothing to recommend it. Should one operate below the knee or above it? The superficial femoral artery was mainly for the supply of the leg below the knee, and the tissues above the knee were supplied mainly by the profunda femoris and branches, which came in from the sciatic, gluteal, and obturator. Those vessels in the thigh were generally free from calcified conditions. The thigh would be well nourished and able to repair damage done by amputation. Therefore he felt it was better to amputate immediately above the knee; there was nothing to be gained by going far above the knee. There was objection to operating in the upper part of the leg, for the flaps which were cut were likely to be insufficiently nourished by the damaged tibials. A further objection was that if the arteries were calcified there was a real difficulty in securing them. A skiagram would often indicate which arteries were calcified and which were not. If there was calcareous degeneration of the popliteal low down, it indicated that one should go higher up for a healthy vessel to ligature. If the tibial arteries were calcareous throughout, it was doubtful if there could be satisfactory ligature of them in the leg. Therefore, if the worst came to the worst, one would amputate in the thigh. But he had seen satisfactory results from amputation in the upper part of the leg.

Discussion.

Mr. W. SAMPSON HANDLEY did not question the broad truth of Sir Anthony Bowlby's statement that senile gangrene was due to fixed organic changes in the arteries, but suggested that in many cases there was superimposed a nerve element, an element of spasm or vaso-constriction. By Larish's operation of sympathectomy the outer coat of the femoral artery was removed for a centimetre or so, which gave a vaso-dilator effect in the limb below, and the effect lasted a considerable time. It occurred to the speaker that a similar result could be attained more simply by injecting pure alcohol into the outer coat of the artery. He showed drawings of the case of a woman, aged 69, who had senile gangrene in the right foot, the symptoms having commenced ten days before admission. The lesions were on the dorsum and on the plantar surface of the foot, the gangrene extending some distance along the metatarsals and the tarsal and plantar aspects. No pulsation could be felt in any of the arteries of the right lower limb, even in the femoral. The temperature was never above 99° F. He injected alcohol into the superficial femoral. On the day following the injection the patient said she was more comfortable, and there was seen an opaque whitish band round the diseased area. Just previously to the injection the pain had been increasing. A week later the area which had been black was found to have recovered its normal colour, and the surface thermometer showed the diseased foot to be 2° warmer than the healthy one. The toes finally dropped off, and the illustration exhibited showed healthy-looking tissue; it had remained so. He had tried the same treatment in cases of Raynaud's disease, and in Bürger's disease, the condition which occurred in Polish Jews. He wondered whether the eating of rye bread had anything to do with the liability of these people to the disease. He thought there was a case to be made out for the occurrence of a spasmodic factor in senile gangrene, and the use of alcohol injection, even if it did not obviate amputation, might enable it to be done safely lower down the limb.

The PRESIDENT asked what could be done to stay gangrene when it was threatened. He quoted a case of his own in which, in a man aged 85, it supervened after influenza and pneumonia and prolonged lying in bed. Perhaps some such method as citrating the blood could be employed. The patient referred to lost four of the toes off the affected foot, but he lived three years longer.

Dr. PARKES WEBER spoke of premonitory symptoms of senile gangrene, such as intermittent claudication, and said Sampson Handley's method seemed admirably adapted to preventing this disease. In intermittent claudication, when both lower extremities were affected and there was nothing like erythromelalgia, the disease, he thought, was high up, either in the abdominal aorta or in the iliac arteries, and it was of the nature of atheroma, or atheroma with sclerosis.

Mr. J. E. H. ROBERTS accepted Sir Anthony Bowlby's definition of senile gangrene, and referred to the frequency with which calcification occurred at the bifurcation of the popliteal. He also spoke of the need for great care in handling the arteries, because of the great risk of cracking them. In thrombo-angeitis obliterans it must be remembered that the viscosity of the blood was considerably raised. Moreover, in most cases of senile gangrene there was a good deal of sugar in the urine, but after the gangrenous area was removed the sugar disappeared. If Mr. Sampson Handley's operation was applicable, it was especially so when the premonitory symptoms occurred.

Reply.

Sir ANTHONY BOWLBY congratulated Mr. Sampson Handley on the very successful case he had described and illustrated. But he thought that probably it was a case not of senile gangrene but of lodgment of an embolus in the femoral artery, especially as the onset was sudden and all the vessels there were pulseless. Still, whatever the cause, there was no doubt the injection of alcohol was very beneficial. With regard to what could be done in the early stages to prevent an extension of the gangrene, he was still of the opinion that opium was far more beneficial than any other method he knew; it improved the collateral circulation, and the patient felt the advantage of it for many months. With regard to the presence of sugar in the urine in these cases, he did not think it was sufficiently appreciated that in a large proportion of all the cases of senile gangrene there was a temporary glycosuria, and many such he had seen diagnosed as diabetic gangrene. Mostly it was a wrong diagnosis, and when operation—amputation or other—had been carried out, there was no longer glycosuria. These patients did not experience the characteristic thirst, nor the dry cracked tongue, nor did they pass the large quantities of urine which patients did with that disease. Of course, the prognosis in the non-diabetic cases was much better than in the diabetic. In the former class the condition of the tissues did not preclude amputation. In the true diabetic cases with gangrene it was usually of the moist variety; the patient had little or no resistance to the sepsis, and in the majority of cases the patient died before very long. He therefore insisted that it was of great importance to draw a distinction between cases of gangrene in patients with diabetes, and those who merely had sugar in the urine as a concomitant of the local disease.

MANCHESTER PATHOLOGICAL SOCIETY.

A MEETING of this Society was held on Nov. 12th, when Prof. W. W. C. TOPLEY delivered his presidential address on

Streptococci in Relation to Human Disease.

He pointed out that streptococci must be regarded as the first amongst pathogenic organisms as a cause of death in man and particularly in association with affections of the respiratory tract. Classification of such organisms was difficult and any classification must necessarily be inaccurate. A classification suitable for ordinary purposes was suggested. The influence of secondary streptococcal infection in influenza and measles was emphasised, and stress was laid on the importance of isolation and careful nursing precautions to prevent the spread of pneumonia in these cases. The mass of clinical and experimental evidence, he said, was overwhelmingly in favour of scarlet fever being a primary streptococcal infection; in the case of rheumatic fever, though the evidence was by no means so definite, there was much to support the view that a streptococcus was responsible. The pneumococcus group was considered, and Prof. Topley suggested that the Type I. antiserum appeared to be of definite therapeutic value. The decision as to the efficacy of pneumococcal antisera could only be arrived at by careful combined clinical and bacteriological investigation of a large number of cases.

NEWPORT MEDICAL SOCIETY.

AT the first clinical meeting of the session Mr. R. J. COULTER, the President, being in the chair, Dr. T. I. CANDY read a short communication on the

Treatment by X Rays of Menorrhagia due to Uterine Fibroids.

The type of case he considered best suited for this method of treatment was menorrhagia occurring in a patient over 40 years of age causing weakness and impairment of the general health and postponing the onset of the menopause. It was necessary to exclude the presence of malignancy and suppurative pelvic conditions. His technique was to administer at one sitting the dose necessary to produce amenorrhœa. The improved methods of measurement now available and the increase of knowledge of the biological action of X rays enabled this to be done with a considerable degree of precision. He found that the optimum time for treatment was within the first few days after cessation of menstruation. The next menstrual period came on as usual but always very much reduced in quantity. Thereafter complete amenorrhœa became established. In each of the 12 selected cases which he had treated the clinical results had been all that could be desired.

In the discussion which followed Dr. GLYN MORGAN, Dr. H. R. BURPITT, and Dr. MORRELL THOMAS took part.

Exhibition of Cases and Specimens.

Dr. MORRELL THOMAS showed an interesting pathological specimen of a case of hæmatometria following pregnancy.

Dr. CARVETH JOHNSON showed a case of aneurysm of the femoral artery associated with dilatation of the aorta.

Mr. R. J. **LEE** reported upon an interesting case of sarcoma of the upper jaw in which the growth retrogressed in a remarkable manner without treatment but which subsequently recurred. The diagnosis had been confirmed by pathological examination.

The **PRESIDENT** showed a small piece of fine copper wire which he had removed from the vitreous of a patient who had been struck on the eye by a clod of earth.

Dr. P. C. P. **INGRAM** showed a case of gumma of the upper lip successfully treated three years ago and which now showed, on X ray examination, extensive deposits in both lungs. Physical signs were few and it was thought to be a case of syphilis of the lungs.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Nov. 5th, Sir **DAVID WALLACE**, the President, being in the chair.

Mr. A. H. H. **SINCLAIR** made a communication on

Intracapsular Extraction of Senile Cataract.

The speaker began with a quotation from Mackenzie's text-book of 1854, stating that there are three methods for the cure of cataract: 1. The removal of the cataract from the axis of vision. 2. The extraction of the cataract. 3. The division into fragments. It was pointed out that in the paper he wished to deal with the extraction method, in the case of senile cataract only, and by the intracapsular method in which the lens is removed complete in its capsule. Historical facts were next given, including a description of Hermann Pagenstecher's operations. The principal pioneer, he said, of the intracapsular method in modern times was Colonel Henry Smith, who began his work at Jullundur, India, in 1895 by the capsulotomy method, but having seen the intracapsular method performed by Malronez at Amritsar, became a convert to the latter method. He developed the operation on his own lines, now so well known, but stated then that the method was unsuited for juveniles.

Briefly the technique was as follows: A large incision was made with a Graefe's knife, no atropine was used and iridectomy might or might not be performed. The lens was expressed by pressure on the lower margin of the cornea by a blunt hook, either straight out or turning over in its delivery according to how the pressure was applied. Commenting on the method, Mr. Sinclair believed it to be the best in many cases, but it had to be used with great care in this country, as in many cases the zonule was very strong. A further method was described: to avoid strong pressure the extraction of the lens in its capsule effected by the application of a small vacuum pump. This method, though successful in the hands of the originators, Hulen and Barraquer, had not proved so successful in the hands of others. The suction of the best of vacuum pumps was unsteady, and the risk of the loss of vitreous was greater. Yet another method, that employed by Mr. Sinclair himself, was performed with the aid of blunt capsule forceps, for the purpose of grasping the capsule and withdrawing the lens. This method was used by Kalt, of Paris, in 1910, who designed the forceps known by his name. This method was studied by Stanculeanu, who performed a narrow iridectomy; he also examined the capsule before operation with a view to judging its toughness and its capability of standing the strain of traction. Knapp of New York, who had used the method since 1911, employing Kalt's forceps, had published a summary stating that in ten years' experience he had not found late deterioration or change which might be ascribed to the method of operation; further, there had been no vitreous changes, updrawn pupil, or iris prolapse.

Mr. Sinclair proceeded to describe his own technique. The lens was first carefully examined and the type of cataract determined as far as possible. At the operation, after a large incision, iridectomy was first performed followed by insertion of forceps, first opening and then closing with slight pressure against the lens; in this way a fold of capsule could be firmly grasped. Gentle forward traction was first employed, then, after a pause, traction was made in different directions upwards; this caused the suspensory ligaments below to give way one at a time; this step took about 30 seconds. After this the lens became pear-shaped and could be delivered with comparative ease, complete in its capsule. The forceps employed were a modification of Kalt's; they were large-bladed and toothless, slightly curved and provided with a hollow into which the capsule tissue was bunched, thus rendering the grip more efficient.

Regarding results on all cases (52), 16 obtained 6/6 vision; 18, 6/9; 6, 6/12; 7, 6/18; 2, 6/24; 2, 6/36, one case with 6/36 vision had retinal hæmorrhage at the macula and one case lost the sight of the eye from severe infection. Vitreous loss occurred in seven cases; vision in these was 2, 6/9; 2, 6/18; 2, 6/24; 1, 6/36; improvement in vision took place later. In 18 cases the capsule ruptured, leaving remnants in the eye as in the capsulotomy method. In three cases the forceps failed to grasp the capsule over a swollen lens and capsulectomy was performed. Concluding, Mr. Sinclair remarked that this was the least traumatic of the intracapsular methods, and the apparatus was of the simplest. The paper was illustrated by numerous lantern slides and was concluded with a kinematograph demonstration of the whole operation.

Discussion.

Dr. W. G. **SYM** said he preferred the usual capsulotomy method, though undoubtedly the intracapsular method avoided the possibility of having to needle remnants afterwards; on the other hand, with the capsulotomy method, the anterior capsule could be removed and no iridectomy had to be performed.—Dr. J. V. **PATERSON** pointed out that this intracapsular operation was the ideal one, but was attended with such grave danger that continental papers said that it was appalling and ought not to be allowed. In the hands of a highly skilled surgeon the operation was eminently successful, but the risk was too great to be undertaken unless by the most highly skilled.—Dr. E. H. **CAMERON** also spoke.

Dr. **CRANSTON LOW** gave a communication on

Immunity and Sensitisation in Ringworm and Favus.

He stated that, although ringworm was very common in this country, little attention had been paid to changes in the body as a result of infection. He proceeded to review the work on the subject which had been done, especially in Germany and Italy, during the last 20 years, and to give some personal experiences. Favus and ringworm, he said, were apparently local conditions, and when treated by iodine or other antiseptics the lesion disappeared. But farm-workers, having been once infected by cattle ringworm, were afterwards immune. Neisser and Plato experimented on these lines and attempted a treatment by means of a sterile filtrate of a crushed culture of the fungus prepared in the same way as "Old Tuberculin"; this they called "trichophytin." It was found that when this was injected into persons suffering from deep-seated ringworm marked local, systemic, and focal reactions followed, which, however, did not occur in persons not suffering from ringworm or in those in whom the condition was superficial. This showed that some tissue changes had occurred in sufferers from the condition when deep seated—in other words, they had become sensitised to the infecting agent. Experimentation was carried out on these lines afterwards by several workers on animals and man, and it was definitely shown that after inoculation with ringworm or favus the subject became less prone to later inoculation and eventually developed an immunity. Regarding serum, it was found that in marked cases of deep-seated ringworm a positive fixation reaction was obtained with a trichophytin antigen. Dr. Low experimented to see whether a skin-test could be obtained for diagnostic purposes in ringworm and favus of the scalp, using intracellular toxins and crushed fungus prepared by himself together with samples of trichophytin and favin prepared by Richardson and King. Results were as follows: 11 cases of small spore tinea capitis due to *Microsporon audoini* were tested; of these, four were negative, four doubtful and probably negative, and only three were positive. The tests were cutaneous. The practical value of these skin-tests was considered very doubtful. Regarding treatment, it had been found that, after injection of fungus extract, ringworm healed more quickly by stimulation of the skin to repel the disease. This was only true when the disease was deep seated. With ringworm of the scalp throughout the animal kingdom the young only were affected; in humans the disease died out spontaneously at the age of 14; treatment had been greatly shortened by means of X rays, but anything further to shorten treatment would be very acceptable. With this aim "microsporon" was injected, but the results were so disappointing that it was given up after treating five cases only. Concluding, Dr. Low stated that a deep infection with living fungus could produce changes in the blood and skin which were not true anaphylaxis but a form of sensitisation. In superficial fungus infection no sensitisation of the skin occurred, and that was the reason why ordinary ringworm of the scalp showed no tendency to spontaneous cure.

Exhibition of Cases and Specimens.

Dr. R. A. Fleming showed a case of *Congenital Heart Disease* in a girl aged 12, which presented difficulty in diagnosis. The patient had a definite presystolic thrill and great involvement of the right heart as evidenced by X ray and electrocardiogram. In spite of this she showed no cyanosis, polycythæmia, clubbing of the fingers, or other symptoms that might be expected.

Mr. J. W. Struthers showed a specimen of a *Mammary Tumour* weighing 11½ lb. The patient was a woman aged 56, who had only noticed it for two years. It was a simple tumour of a fibroid nature.

Dr. Chalmers Watson showed cases illustrating the ætiology and treatment of *Chronic Disease of the Nervous System*. Three patients were shown—a case of pseudo-tabes with weakness in the limbs and unsteadiness of gait, and two cases of disseminated sclerosis both with previous unsteadiness in walking and weakness of the legs. Dr. Watson made the patients walk and run to demonstrate improvement. A fourth case of disseminated sclerosis of five years' duration, when the patient had received previous treatment in the Royal Infirmary, was described. The object of the demonstration, Dr. Watson said, was not so much to emphasise the individual results as to draw attention to the principles. Treatment was directed to the correction of the various manifestations of autosepsis as revealed by physical examination and investigation of the urine and stools. This involved attention to diet, promotion of elimination, physical therapeutic measures, and, in certain cases, an attempt to increase the patient's resistance more directly by vaccine treatment. The details of treatment varied in the different cases, but the principles had uniform application.—Prof. Edwin Bramwell, called upon by the President, said that if Dr. Chalmers Watson's thesis were correct, it was a most important contribution, but that otherwise the title was unfortunate and misleading. A demonstration of this kind should take the form of a communication in order that details regarding the cases and other facts upon which the conclusions were based might be presented and discussed. Prof. Bramwell was of opinion that the demonstration was in itself unconvincing.—Dr. Watson, replying, said he merely stated facts and hoped to stimulate individual inquiry, bringing the study of nervous disease from the too specialised branch of neurology to the sphere of the general practitioner.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

A meeting of this section was held in the Royal College of Physicians, Dublin, on Nov. 14th.

Mr. R. C. B. Maunsell, the President, read a paper on two cases of

Carcinoma of the Rectum,

complicated by pregnancy and treated by excision. In the first patient, a woman aged 27, three months pregnant, the growth was removed by the perineal route after preliminary colostomy, and the patient was subsequently delivered of a full-time healthy child. In the second case the age of the woman was 38, and she was three months pregnant of her eleventh child. The combined perineal and abdominal route was used for the removal of the growth, and the pregnancy ended normally in the birth of a living child.

Mr. Seton Pringle said that on one occasion he had removed the rectum in a case of pregnancy. The patient had been pregnant over four months, and it would have been almost impossible to deal with the growth without first removing the uterus, and this he did. He was interested to hear that the President opened the colon before proceeding with the pelvic operation, though he personally thought that by doing this there would be danger of soiling, and that it was better to leave the opening of the upper segment till the conclusion of the abdominal section of the operation. He thought the only operation which could be called a radical operation was the combined abdominal and perineal. If the patient was young, and in good condition, he carried out the combined method, but in elderly people he did the two-stage perineal operation, as described by the President. He thought that in cases of rectal cancer, or cancer low down in the colon, the sphincters should never be preserved.

Mr. Henry Stokes said he had had no experience of cases of carcinoma of the rectum complicated with pregnancy, but some months ago he had done a two-stage operation on a fairly young woman for cancer of the rectum. She had one child, and 13 months after the operation she had another child. He believed that in such cases, after the operation had been done, if further pregnancies occurred there was no chance of sepsis.

Dr. Bethel Solomons said it was strange that in obstetrical text-books little space was devoted to the subject of cancer of the rectum as a complication of pregnancy. Usually there were a few lines stating that Cæsarean section was the treatment. The excellence of the results in the cases reported was a conclusive proof that extirpation should be practised when possible. In the second case, had radical operation been refused, Cæsarean section at term would have been the only method of treatment. The literature on the subject was very scanty. The only series of cases he could trace was in a paper in *Acta Gynaecologica Scandinavica*, 1922, i., pp. 445–458.

Mr. C. J. Macauley said that he had never had a case of cancer of the rectum complicated by pregnancy, but he agreed with the President in preferring rectus colostomy to iliac colostomy. Iliac colostomy would have gone too near the anterior superior spine. He did not think that the abdominal perineal operation should not be performed in people over 60, as he thought that very often in young people there was more tendency to widespread growth, and provided old people were in good condition he saw no reason why they should not stand the operation. A year and a half ago he had done an abdominal perineal operation on a man of 65, with successful results. A lot, of course, depended on the patient's physique, and the circumstances in every case were different. He personally never attempted to preserve the sphincters.

Mr. **Arthur Chance** said that he had recently had an opportunity of seeing ten cases of carcinoma of the rectum operated on at the Mayo Clinic. First a preliminary colostomy was done, and 14 days later a perineal incision was made. The first incision was oblique, and was made high up in the lateral wall of the abdomen. The muscles there were very deep, and therefore good adhesion was obtained. This opening was very convenient for the wearing of a colostomy belt. The incision was made large enough for the hand to be put in, and the liver and the pelvis were explored. The subsequent operation was done with the patient lying on the face, and it was done under trans-sacral anæsthesia. The patients never complained of pain, unless it was necessary to pull down the peritoneum.

Mr. **W. Pearson** said that he thought every case of excision of the rectum should be dealt with by preliminary colostomy. In cases of rectal cancer, he believed in perineal removal, unless there was special indication for the double operation. In cases of males the urethra was a danger. He thought that t was very difficult to keep these cases aseptic. When the combined operation was done, it could be done all in one stage or in two stages, and although it took a little longer he thought it was better to do t in one stage. The type of patient made a great deal of difference; in thin patients the operation was much easier to do than in very fat patients.

The **President** replied.

Mr. **Macauley** read a paper on a case of a Solid Tumour of the Mesentery, and Mr. **Stokes** described two cases illustrating the use of Murphy's button.

LIVERPOOL MEDICAL INSTITUTION.

At a meeting of this Institution on Nov. 20th Mr. **Bernard Chavasse** read a paper on

Arterio-sclerosis and the Fundus Oculi.

He said that the sphygmomanometer required to be supplemented by the ophthalmoscope, which, ince its electrification, was making a strong bid for more frequent use in general practice. He exhibited a series of autochrome lantern slides of paintings illustrating the main features of arterio-sclerosis as een under magnification in the living retinal vessels; uch as the well-known "copper wire" and "silver wire" arteries, "beading" of the streak of reflected ight on the arteries, "corkscrew" arteries and apillaries, opacification of the arterial wall, "pipe tem" sheathing of arteries, irregularity of the arterial umen, as well as later and final changes both in the vessels and in the fundus as a whole. Dealing with the ppearances at arterio-venous crossings, he said that he S-shaped bend produced in a vein by an overlying rterio-sclerotic artery—a sign which had been escribed as the most important of all the signs of etinal arterio-sclerosis—was one which needed qualication. He had observed it not infrequently in ealthy children. The necessary qualifications were he veiling of the vein by the ghostly arterial wall, he failure of the vein to shine darkly through the verlying arterial column, and a diminution in the alibre of the vein at the actual point of crossing. Given these qualifications, or at least the presence of ther signs of arterio-sclerosis in other parts of the undus, he agreed with Mr. Foster Moore that the sign was of great significance. He discussed its mechanical ausation and suggested that the earliest stage at which one could hope to recognise it was by the bsence of that optical illusion which caused the two alves of the more remote limb of any X-shaped figure o appear out of alignment. This feature, however, e felt bound to admit was not one on which much eliance could be placed without such special aids as he use of red-free light and special methods giving high magnifications. The appearance of "banking" of blood in a vein owing to its obstruction by an overlying sclerosed artery was one which he thought he had sometimes seen, but he had been unable to satisfy himself that the appearance was not in reality due to the "porpoise-like" course of a vein in and half out of retinal nerve-fibres which were assuming that cloudiness which was also a feature of arterio-sclerosis.

Dr. **W. Johnson** read a paper on

Borderline Cases in their Relation to General Medicine and Surgery.

He remarked on the light which recent psychological progress has thrown on the psychoneuroses. He reviewed the physical manifestations which were the result of emotional states, and pointed out that many patients with these symptoms were treated for medical or surgical conditions, without any attention being directed to the disordered emotional condition which was their real cause. Cases could be grouped into four types—abdominal, cardiac, cephalic, and (in women) pelvic—according to the physical symptoms which predominated. Surgical interference was to be avoided and had in some cases proved disastrous. The essential form of treatment lay in the application of the principles of mental hygiene.

Dr. **R. M. Manwaring-White** considered the subject one of greatest importance, particularly to the general practitioner. He considered that there were hereditary tendencies, that shock, emotion, fatigue were exciting causes, but he was surprised that there had been no mention of organic disease as the underlying causative factor. He instanced *B. coli* infection of the urine, infected teeth, and other septic infections. As regards treatment, he realised also the value of suggestion, but had experienced very little success from administration of suprarenal gland. In those cases with subnormal temperature and slow pulse he had frequently found benefit from thyroid administration.

Mr. **A. E. Davis** said that in his experience the great majority of neuroses and psychoneuroses had their origin in the emotion of fear. He was opposed to the Freudian theory of a universal sexual basis in these cases, and thought that dogmatic and unproven dicta, such as Freud's "in a normal vita sexualis no neurosis is possible," were positively detrimental to the proper study and advancement of psychological knowledge. Of the two primitive instincts, that of self-preservation was of greater moment than the sexual. Fear was the sine qua non of the instinct of self-preservation and was a biological necessity for the preservation of the race or species. By mental analysis carried into the child mind—the emotional and primitive mind in development as contrasted to the later developed and acquired powers of the conscious or reasoning mind—one was enabled to trace fear plus some exciting factor as the cause of psychoneuroses. This factor might be external, such as a mental trauma, or internal and toxic in character. True, the sexual obtruded frequently in the form of masturbation, but if this conflict was submitted to further analysis, the symptoms would be found due to the sense of shame and fear of harmful consequences, fear being predominant. Phobias and neurotic symptoms could be traced either to fear or to the irritability and hyperacuity of the senses due to exhaustion of nervous centres by long-continued stress and drain of nervous energy. They were not symptoms of disease but manifestations of tiredness and exhaustion, and could be remedied by mental rest in removing the doubt. He gave instances of emotion overpowering the evidences of the physical senses. The psychoneuroses were purely the expressions of emotional disturbances, and origins must be sought in, and treatment directed to, the emotional level, or so-called subconscious mind.

Royal Sanitary Institute.—The next Congress of the Institute and Health Exhibition will be held at Edinburgh from July 20th to 25th, 1925, by invitation of the Magistrates and City Council.

Reviews and Notices of Books.

THE HUMAN TESTIS AND ITS DISEASES.

By MAX THOREK, M.D., Surgeon-in-Chief, American Hospital, Chicago; President, International Congress of Comparative Pathology, Rome, 1924. London and Philadelphia: J. B. Lippincott Company. 1924. Pp. 548.

THE title on the cover of this book is somewhat misleading, because by far the greater part deals with the endocrinology of the gland, and the treatment of its aberrations of function. The first two chapters give a short summary of the anatomy and histology of the testes, which in no way differs from the ordinarily accepted teachings. The third chapter, of considerable length, is devoted to the physiology of testicular secretions, and is one of the most interesting parts of the book.

The author surveys the history of the various theories of testicular function, and reviews Berthold's early work on transplantation. His discussion centres chiefly on the function of the Leydig cells, and he reports the views of Ancel and Bouin, and Steinach's results on this subject. Voronoff's and Retterer's conclusions on the origin of the internal secretion are discussed at length, and finally he concludes with his own experiments and a statement of his own views.

Chapter IV. deals with the ordinary diseases of the testicle, and is disappointing. The whole subject, from anatomical anomalies through the infections down to the growths, occupies only 97 pages, of which 31 are just statistical tables. The acute and chronic inflammations are most cursorily dealt with, and the description of the growths is poor. It would appear that the author's main interest is in the errors of internal secretion, and that this chapter, though essential to his intention, was one to be completed as quickly as possible.

The remainder of the book is devoted to the endocrinology of the gland, and the subject is dealt with in great detail. There are apparently a great number of indications for sex-gland implantation, and the author concludes, from experimental and clinical findings, that the donors must be either human or of the higher apes. He employs two main methods of technique. In one the graft is implanted in the subperitoneal tissues beneath the rectus abdominis near the deep epigastric artery, and in the other the bed is the perirenal fat just below the lower pole of the kidney. The graft is prepared by removal from the donor intact in its tunica vaginalis, which is then removed and the tunica albuginea punctured in about ten places by the cautery in order to expose the tunica vasculosa. Dr. Thorek is reticent in his expressions as to the present position of gonadal implantation, and it seems probable that the graft does not live more than, at the outside, 12 months. Yet there appear grounds for belief that in certain cases of premature senility, loss of both testes, and one or two other conditions, marked improvement may occur in a sufficiently large percentage of cases to make the operation justifiable. With regard to organotherapy by mouth or by injection, he gives the gloomiest reports, and apparently there is little to be hoped for in that direction.

The book is admirably got up, with good type and excellent illustrations. Each chapter has its own bibliography, and at the end of the book an index of authors is given separate from the ordinary index. As a standard monograph upon the diseases of the testicle it will find no place, for the ordinary diseases are not well described, and there is little or no help for the practitioner with regard to diagnosis and treatment. But wherever research work on gonadal transplantation is being carried on, and for all those engaged in the practice of prolonging or retrieving an elderly man's sexual life, this monograph will be a refuge in times of difficulty.

A VADE-MECUM OF EMERGENCIES.

Manuel de petite chirurgie et de technique médical journalière. Third edition. By P. ADIN-DELTEIL, Professor of Clinical Medicine at the Faculty of Medicine of Algeria; and P. SLUBEYRAN, Professor attached to the Faculty of Medicine of Montpellier. Paris: Masson et Cie. Pp. 927. Fr.45.

THIS is a great deal more than a text-book of minor surgery; there are, in addition to the purely surgical matter, chapters on anæsthesia, massage and re-educative methods, the treatment of syncope and of various forms of poisoning, the clinical examination of medical and surgical cases, thermometry, sero-, hydro-, and balneo-therapy, disinfection and the management of contagious diseases, and, finally, on the performance of post-mortem examinations. Certain modifications have found their way into this third edition as the result of war experience, notably in the chapters on splints and surgical apparatus, and a new chapter by Mr. Bécart on blood transfusion has been added. The instructions given are so precise and so carefully laid down that, having once read them, it would hardly be possible to err in the performance of any of the many and varied operations with which the book deals. The volume might be very useful to resident officers in hospitals and to general practitioners as a book of reference in emergencies, medical as well as surgical.

MATERIA MEDICA AND PHARMACY.

Materia Medica, Pharmacy, Pharmacology, and Therapeutics. Eighteenth edition. By WILLIAM HALE-WHITE, K.B.E., M.D. London: J. and A. Churchill. 1924. Pp. 712. 10*s.* 6*d.*

POPULAR text-books are usually known by the name of the author rather than by their medical title, but we doubt if any is so much lost in its author's name as is the book in question. Everyone knows "Hale-White," few would be able to state its title. The words eighteenth edition cut the ground from under the critic, and at the same time make praise unnecessary. The strength of "Hale-White" is its well-balanced description of each drug; its weakness is the absence of that pharmacological generalisation about groups of drugs which eases the task of the learner and tells him what to learn. In this respect it differs from its newer rivals; they tend to teach the student theories and easy paths to knowledge, but to leave him stranded as to facts. "Hale-White" teaches him the facts but allows him to wander (perhaps to stumble) among them. Possibly the small print Materia Medica might be revised and purged. Students are apt to take fright and not to learn any of the constituents of drugs, or, on the other hand, to set out blindly to try to learn them all. Two small inaccuracies remain: the strength of the compound mercury ointment has escaped correction and pelletierine tannate is still indexed wrongly. The statement that "about 5 per cent. of chloroform to 95 per cent. of air is a good mixture" does not agree with modern experimental work, which shows that 2 per cent. is the maximum strength for safety.

We shall continue to prize "Hale-White."

Essentials of Pharmacy. With Questions and Answers. Second revised edition. By CLYDE M. SNOW, Ph.G., A.M., Professor of Pharmacy, University of Illinois School of Pharmacy. London: Henry Kimpton. 1923. Pp. 752. 28*s.*

IT is debatable whether such a big book as this should be written in the form of question and answer, but granted the principle of the "quiz" method we can commend this work as well done. We calculate that there are over 9000 questions and answers, a figure which shows to what an extreme this method of teaching has been carried. Some of the questions are on pure chemistry, others on pharmacy and dispensing, and others on the ethical and legal side of the pharmacist's art; to each of the questions the answer is added immediately. The book is well printed and well set up, facts which of themselves prevent the feeling of ennui usually created by the small type in which questions are added in many text-books. The book is written for the pharmacist; it goes far beyond what is expected of the medical student in the area of pharmaceutical work, but the contents are interesting to the medical man, and would be of greater interest if they were in compact form instead of a form suitable only for examinations. It is based on the United States Pharmacopœia and the National Formulary, and therefore contains terms and names of drugs which are unfamiliar to English ears.

BIOCHEMISTRY.

Microméthodes et semi-microméthodes. By Dr. DURUPT, ex-Chef de Laboratoire à la Faculté de Médecine. Paris: A. Poinat. 1924. Pp. 288. Fr.15.

THIS small volume contains descriptions of methods which have long since passed away, and are only of interest from an historical point of view. Practically all the methods of blood analysis are those devised by that great father of blood analysis, Ivor Bang. The book should be read by students just finishing a course of chemical pathology at the present time. They will then appreciate the thoroughness and amazing completeness of these old techniques, and be able to render to Bang the credit he deserves—a thing which most people omit to do. The book can only be regarded in the light of a memorial card.

GREAT MEDICAL MEN.

(1) *Lord Lister.* By CUTHBERT DUKES, M.D., D.P.H. (2) *William Harvey.* By R. B. HERVEY WYATT. London: Leonard Parsons. 1924. Pp. 186 and 214. 4*s.* 6*d.* each.

THESE two books form part of a series called the Roadmaker Series, the aim of which, says the publisher, "is to encourage interest in those British men and women whose lives and achievements have widened human knowledge, eased human ills, added to human resources and means of self-expression and strengthened the foundations of civilized society." Certainly, no two men have done more to widen human knowledge and ease human ills than Harvey and Lister. Much has, of course, been written about both, but the two little books before us contain a simple and vividly written account of researches which involved many years of labour before the undertakers thereof saw fruition. We notice that Dr. Dukes, in speaking of Lord Lister's father, Joseph Jackson Lister (1786–1869), (p. 25), says, in regard to his optical researches, "It was these discoveries that led to the production of the 'Achromatic Lens' and the perfection of the modern microscope." J. J. Lister certainly was the father of the modern microscope, but surely the credit of the achromatic lens belongs to Chester Moor Hall (1733) and to John Dollond, who, working independently, arrived at the same conclusions and published them about 1740. Hall had not made his discovery public. All the same Lister was the first to apply the principle to the microscope. Lord Lister's patient toil in perfecting his system is described with a simple clearness by Dr. Dukes which makes it comprehensible by any reader of ordinary intelligence.

Mr. Wyatt has a more difficult task than Dr. Dukes in explaining Harvey's discovery to lay readers, but we think that he has succeeded, and he leads up to Harvey's proof by giving a very clear account of Harvey's predecessors in the task. In one place he is led into looseness of expression—namely, on p. 31, where he says that "Hippocrates corrected Aristotle on the matter of the cardiac origin of the nerves. . . ." Seeing that Hippocrates is generally said to have been born B.C. 460 and Aristotle B.C. 384, it is hardly likely that the former would have the opportunity of correcting the latter, for he would be 96 when Aristotle was 20. Mr. Wyatt does not give the reference to Hippocrates, but he may be referring to some passage in a volume of the Hippocratic Corpus which was written after or during Aristotle's time. But the book as a whole is well done, and Mr. Wyatt supplies a most useful table of dates at the end.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY. October, 1924.—R. O'Connor: Diagnosis of Vertical Deviations of the Eyes. Want of balance of the muscles causing vertical movements in the two eyes is generally recognised as a cause of troublesome symptoms, capable of being corrected by the appropriate prescription of prisms. That such a want of balance can be latent so that it is not immediately apparent to the Maddox rod or other test but needs the prolonged occlusion of one eye to reveal it is not generally recognised. In 1920 F. W. Marlow, of Syracuse, New York State, put forward this view in the same journal, and now R. O'Connor, of San Francisco, writes in confirmation of it, citing 80 cases in which the test was applied for seven days, followed in most cases by the prescription of prisms which relieved the symptoms. In a minority of cases an advancement operation was undertaken.—Basil Lang contributes two short papers on technical points in the operative treatment of cataract, the first on a Modification of the Usual Method of Needling the Lens Capsule after Cataract Extraction, the second on a Modification of the Usual Method of Removing the Lens in the Extraction of Senile Cataract.—Microscopy of the living eye with the aid of the slit-lamp is a subject on which many workers are now engaged. Basil Graves contributes a paper on the subject, being the report in connexion with his Lang Research Scholarship. It deals with several technical details in connexion with the subject.—Besides the usual abstracts of articles from foreign journals, this number contains a letter from George Young and an editorial on the so-called medical treatment of cataract, both throwing cold water on the proposals which crop up from time to time to assist the absorption of striæ in the lens by means of eye-drops.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.—In the issue for October Major M. B. H. Ritchie points out that the Army Medical Service, on which sudden and heavy demands are made in war ("the abnormal is the rule and the normal is the exception"), is yet not autonomous; the Director-General of Medical Services has no access, of right, to the Commander-in-Chief, the tactical disposition of medical units will be ordered by the Adjutant-General after consultation with the general staff, yet the transport required to effect the necessary movements does not belong to the R.A.M.C., but must be obtained from the Quartermaster-General. Personality alone can make such combined administration run smoothly, hence the medical officers should understand the thoughts of those who direct them, and some medical officers should be sent to study war at the Staff College. The old separation of soldiers into combatant and non-combatant is out of date; all are equally exposed to risk. The great need in future wars will be the conservation of man-power; who will here give greater help than the medical officer, who has already made it possible to wage war in countries in which, as in Palestine, disaster formerly overtook every invader? He urges that medical units should be considered as "troops," not as "services," and be made autonomous, so as to draw bright young doctors into the army, away from civil practice which now attracts them more. —Dr. George Stuart, Assistant Director of Health, Palestine, tells of typhus in Palestine in 1921, chiefly at Jaffa, clinically not easy to diagnose, but recognisable by the Weil-Felix reaction at some time during the first 12 days, in 1 in 80 or over, increasing on subsequent days.—Captain S. Smith, in virtue of his experiences at Secunderabad, advises that a severe or a suspicious sore-throat should be treated with antitoxin at once, diphtheria being commoner than usually thought, and antitoxin of most value if given early.—Captain T. O. Thompson gives an enthusiastic account of a day's fishing for "Bahmin" at Cannanore, with many good words for the Moplahs, who were recently in trouble.

SPANISH MEDICAL JOURNALS.

A BRIEF survey of the current issues of the Spanish medical periodicals which have reached us suffices to show that at all events in the larger centres of Spanish-American civilisation medicine in all its branches is well abreast of the times. These periodicals are: *La Semana Medica:* thirty-first year; Buenos Aires. *La Revista Sud Americana de Endocrinologia y Immunologia:* seventh year; monthly; Buenos Aires. *Revista de Medicina y Cirugia de la Habana:* twenty-ninth year; fortnightly. *Boletin de la Sociedad de Cirugia de Chile. Revista de Ciencias Medicas:* second year; monthly; Buenos Aires. *Estudios Medicos:* second year of new series; monthly; Murcia. *Archivos de las Enfermedadas del Corazon y de los Vasos:* Nos. I., II.; Barcelona.

Spain proper is only represented by two publications in this list—viz., *Estudios Medicos*, published at Murcia, and *Archivos de las Enfermedadas del Corazon y de los Vasos*, which appears to be the private venture of Dr. Duran Arrom, who is connected with the Institute of Practical Medicine in Barcelona, as Professor of the Pathology of the Circulation. In the latter the various problems of the heart are dealt with on the most modern lines, the papers being profusely illustrated by plates of cardiograms and sphygmographic tracings: the printing, plates, and paper are all excellent.

Estudios Medicos, which is in its second year but a revival of an older paper, is a journal of general medicine which draws its contributors from all over Spain, and has on its board representatives of all the chief centres of medical study. It is remarkable for its almost frivolously artistic appearance and the brilliant colouring of its advertising pages: merely as a specimen of typography it is really exceptional, but this does not prevent the articles contained in it from being of a solid character. Lengthy papers on the relation of medicine to criminology, and on the combined familial degenerations of the cord, and other neurological subjects, with illustrative cases, show a wide acquaintance with the work done in other countries. An illustrated article on the treatment of fractures of the femur by suspension and abduction is a satisfactory proof that the Spanish soldier is benefiting by the experience gained in the late war. Of the other contents, two long literary articles may be mentioned, one on the Don Juan type of man, and the other on the mental pathology of the works of Galdós, the novelist.

Of the South American journals, *La Semana Medica* is fairly comparable with the weekly medical journals of Europe or America. Many of the articles show keen clinical observation, and the reports of cases are, for the most part, remarkably complete. A typical number, August 7th, 1924, contains amongst others the following articles: (1) The Rôle of Phenolsulphophthalein in the Investigation of the Functions of the Kidney; (2) Cushing's Decompression Operation, with notes of two cases of fracture of the base so treated; (3) the Differential Tension in Aortic Insufficiency; (4) Two Cases of Traumatic Meningo-Encephalitis treated successfully with Electrargol and Antistreptococcic Serum; (5) Report of a Commission on the Prevalence and Prevention of Trachoma in the Argentine Republic. This report is followed by a much longer report on the whole subject by Dr. Barberini, one of the members of the Commission, to which the other members signify their assent. A sketch-map is given at the end showing roughly the prevalence and severity of the disease in the Argentine. The conclusions arrived at are, shortly, these: (1) That the disease is not autochthonous but has been introduced by the alien immigrants, large numbers of whom come from countries known to be seriously affected—e.g., Italy, Spain, and Russia, and is now widely diffused throughout the Argentine, especially the districts of Tucuman, Santa Fé, and San Juan. (2) That compulsory notification is necessary and a more rigid inspection of immigrants. The establishment of centres in the worst regions under the control of specialists is recommended where every means for the prophylaxis and cure of the disease may be adopted. (3) That the coöperation of the central and local authorities is necessary effectively to combat the disease and enforce the regulations which should be made by fresh legislation, the old law having proved ineffectual. (4) All workshops and factories should be inspected periodically and the personnel affected treated at the expense of the owners. (5) To carry out these measures requires besides a trained and disciplined personnel, persistency, method, and adequate financial arrangements.

As an indication of the progressive character of obstetric medicine in Buenos Aires, an article should be mentioned from the *Semana Medica*, of July 3rd, on Fœtal Cardiotelephony and Phono-cardiography. A question of priority between Buenos Aires and Breslau. The Spanish specialists appear on the evidence to make good their claim of having anticipated their German colleagues by some six months in what to the non-specialist appears a somewhat remarkable achievement. The illustrations in this journal, speaking generally, are not on a par with the rest of it, and leave much to be desired in the way of clearness—e.g., the cardiograms are illegible in places.

La Revista Sud Americana de Endocrinologia Immunologia y Quimioterapia is what its title implies, and appears to be well up to date. An article on the treatment of chronic trypanosomiasis and "mal de Caderas" (an equine disease) by "Bayer 205" is, perhaps, the most important in the numbers to hand. *Revista de Ciencias Medicas* deals less with clinical matters and more with general medical problems; it devotes a good deal of space to contemporary literature. The most important article is one by Dr. G. Pittaluga, on the first meeting of the Committee of Hygiene of the League of Nations, which he concludes by expressing his conviction of the value of the work done. The Bulletin of the Society of Surgery in Chile shows that the Society was founded in 1922, holding its first meeting in October, and has carried on an active existence since. It is mainly a record of the clinical work and experience of the various members. As such, it shows that the surgeons of Santiago are fully alive to the latest developments of modern surgery. In proof of this, articles may be instanced on Periarterial Sympathectomy in Varicose Ulcer of the Leg and Perforating Ulcer; two cases of Acute Pancreatitis with recovery after operation; Splenectomy in Familial Jaundice with a successful case.

Revista de Medicina y Cirugia de Habana is a monthly publication on general lines. One article is of great interest: it gives the result of operation for congenital cataract in a man of 29 with valuable details about his psychological condition when he recovered sight—a remarkable account. An article on Basal Metabolism shows a full appreciation of its importance in modern medicine.

With regard to Spanish medicine, it is difficult to fix on any standard of comparison as so little has been known of it in the past. With the exception of Ramon y Cajal, the great physiologist, it is doubtful whether any Spanish name has been heard of by a dozen Englishmen in the last 30 years. Judging, for what it is worth, from the International Congress held in Madrid in 1905, it may be said that the last 19 years have shown marked progress, and a laudable desire to keep up with modern thought. The expanding communities of Spanish South America have, no doubt, always had a higher standard in their great centres, and have probably felt to some extent the influence of the United States, where medical progress has been very rapid in the last 20 years. The difficulties of language, though not really great for anyone familiar with Latin or its congeners, must always be a bar to any widespread acquaintance with Spanish medical literature; nor can it yet be said that it is worth while for anyone to learn Spanish simply in order to study that literature. Nevertheless, there are, in the periodicals under discussion, contributions which would be interesting and valuable to students of almost any branch of medicine or surgery, and these are likely to increase rather than diminish in the future. It must be remembered that there are many other Spanish journals, though those mentioned probably represent the most progressive centres, excepting Madrid, the journals of which are not amongst the number.

Though the question is commercial rather than medical, it is impossible to glance through these journals and not be struck by the fact that the advertising pages show an entire absence of any English names, whilst American, German, and French firms are largely to the fore, especially the last. The same difficulties of language, added to the fact that we have not got the metric system, probably militate against a commercial, as they do against a medical, liaison, but in the former case it might reasonably be supposed that there are substantial grounds for overcoming them with such a large market open!

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

FURTHER SITTINGS.

(*Continued from p. 1020.*)

THE Commission[1] resumed its sittings on Tuesday, Nov. 18th, this time at 1, Whitehall-gardens, with Mr. H. P. Macmillan, K.C., in the chair.

EVIDENCE OF MEDICAL SUPERINTENDENTS OF MENTAL HOSPITALS.

The first witness was Dr. J. Francis Dixon, medical superintendent, City Mental Hospital, Humberstone, Leicestershire. He said the institution accommodated 1000 female and 350 male patients. The Chairman, remarking that the Commission was interested in the smooth working of the Lunacy Acts, asked if Dr. Dixon had any suggestions for the simplification or improvement of the code under which he worked. The witness replied that, in general, if one interpreted some of the legal enactments strictly according to the letter of the law, innumerable difficulties could be raised; but if one went just behind the letter to get at the spirit of the requirement, then it would be found that many difficulties were able to be overcome. He instanced the Continuation Order and admitted that he felt some embarrassment in signing it in cases of convalescence or recurrent cases which might have lucid intervals, lasting perhaps as long as a year. It was difficult to give a certificate of continued insanity in such cases. Nevertheless, he had no doubt as to the desirability of the continued detention of the patient, for a time at least. He frequently took advantage of the power he had of allowing patients out on trial for 48 hours at a time, especially in cases of convalescence, in order to accustom them to the normal mode of living.

The Chairman, referring to the suggestion that in the incipient stage it might be desirable to avoid the stigma of certification, asked if it would be advisable to have a continuing certificate in a modified form. He did not like forms which compelled people to state things they did not believe, and it seemed that in some cases there was doubt as to whether a patient should be certified as of unsound mind.

Dr. Dixon agreed that the form now in existence might be modified. Was it necessary to say that the patient was still of unsound mind? It seemed to him that it would be better to say "the patient is now convalescent but still requires further treatment, to which he consents."

The Chairman said it would be interesting to know whether during his long experience Dr. Dixon had encountered cases in which he, on examination of the patient, admitted he was satisfied that it was not a proper case for detention. To this Dr. Dixon replied that he had encountered cases in which he had been unable to confirm the statements made in the certificate, but that was a somewhat delicate matter, inasmuch as although a patient might have had all the qualities that had been assigned to him, yet at the particular time he examined him they might be absent. The patient might be one who was unaccountable for his actions over a short period of time. In such a case if he had to say in the first report that such a patient was, in his opinion, insane he would experience a considerable amount of difficulty. The witness agreed with the Chairman that in the matter of discharge the medical superintendent's view of the case should be the predominant element. Asked if he thought there should be facilities for independent investigation of a case at the instance of the patient or relatives, Dr. Dixon said he thought that in all probability such facilities would be most undesirable, for the reason that those who complained most about asylums were the insane.

Safeguards for Visiting Patients.

Replying to a question as to whether sufficient safeguards were provided for visiting patients and for access to them by independent medical men, Dr. Dixon said, speaking from his own experience, that there was a tendency rather to object to publicity mainly owing to the feeling that the whole thing was more or less confidential. He was, however, in favour of anything which would help to humanise the patients and produce normality, as far as it was possible to produce it, and the more the patients came into contact with the right type of people from the outside world, the better for them. He agreed that the effect of being continually in the society of those suffering from the same malady was detrimental to recovery. There were facilities for the mental treatment of patients up to a certain point, and in some cases definitely curative treatment was undertaken, such as the treatment of general paralysis by inoculation with the malaria parasite. Patients in his institution were, on admission, classified, not according to their disease, but on the amount of liberty that could be given them. Proper classification was most important and there should be adequate accommodation for that purpose. He deprecated the present machinery under which a patient had to go before a magistrate prior to certification. It seemed to him to create in the mind of the patient a feeling that he had committed some wrong and was therefore in the hands of the law, rather than entering a hospital to be treated for a disease.

The Nursing Staff.

There was now, he said, some improvement in regard to the nursing staff of mental hospitals, but he thought the senior members did not receive sufficient remuneration, while the juniors in training received, in proportion, too much. It was his view that mental nursing called for a higher kind of work and greater personal qualities than did general nursing, and if the career was to attract those with the necessary qualities and education, there must be proper remuneration and some prospects. He thought it very desirable that persons suffering from incipient insanity should be able to obtain treatment without necessarily being certified. Still, he thought that in the public mind the stigma attaching to certification was due to a misconception, probably traceable to traditions associated with the malady, and that with general enlightenment such would diminish, though he did not think it would entirely disappear. The Chairman asked whether this end would not be helped by having the patients treated at first in homes or institutions which were more hospital than asylum, where they could remain for a time before being stamped as insane. The witness replied that if certification were the bugbear the matter might be carried further and have nobody certified, simply have the temporary order continually renewed. Certification was a protection to those who were dealing with the patient requiring, or who might require, restraint. At the end of last year the number of patients in his institution was 842, and during that year there were 189 admissions, of which 39 were readmissions. The recovery-rate was 37·12 per cent. of admissions. If two certificates for the rate-aided patient were favoured, the second should be signed by a specially qualified medical man, or one appointed for that purpose.

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[1] The personnel of the Commission is as follows: The Right Hon. H. P. Macmillan, K.C., standing counsel to the Convention of Royal Burghs, Scotland (Chairman); Earl Russell; Lord Eustace Percy, M.P.; Sir Thomas Hutchison, Bt., Director of the Commercial Bank of Scotland, and Lord Provost of Edinburgh, 1921-23; Sir Humphry Rolleston, Bt., K.C.B., M.D., President of the Royal College of Physicians of London; Sir Ernest Hiley, K.B.E., at one time town clerk of Birmingham, and formerly M.P. for the Duddeston Division of that city; Sir David Drummond, C.B.E., M.D., Pro-Vice-Chancellor of the University of Durham, and formerly President of the British Medical Association; Mr. W. A. Jowitt, K.C., M.P.; Mr. F. D. MacKinnon, K.C.; Mr. H. Snell, M.P., a member of the executive committee of the Fabian Society, and formerly a lecturer for that society; Mrs. C. J. Matthew; and Miss Madeline J. Symons, of the Women's Section of the National Union of General Workers; with Mr. P. Barter, of the Ministry of Health, as secretary. All communications regarding the Commission should be addressed to The Secretary, Royal Commission on Lunacy and Mental Disorder, Ministry of Health, Whitehall, S.W. 1.

Replying to Earl Russell's suggestion that the patient instead of being described as a certified lunatic should be known as " a mental case under compulsory treatment," witness agreed it would be well to start afresh and use some other term than "lunatic."

Mental Recovery-rate.

Dr. O. G. Connell (superintendent, Norfolk Mental Hospital, Thorpe) was next examined. He said the principle of the reception order was sound, but the same procedure should be adopted for the rate-aided as for the private patient, especially in requiring two medical certificates. He said the recovery-rate in his institution in 1923 was 35 per cent. of admissions, and this year, so far, it had been 45 per cent. In some institutions the rate reached 70 per cent. This year he had received 197 patients, only seven of them being readmissions. Cases likely to benefit by treatment should not be certified, but should be received as voluntary cases. Some people who had been in the institution were quite ready to come back if there were any return of their malady. One woman in such pass pretended to commit suicide so as to cause her admission again. The witness admitted that if voluntary patients were admitted to mental hospitals the latter should have some power of detention; it would suffice if 72 hours' notice of intention to leave were given, to prevent a patient discharging himself if he had a breakdown, for that time would enable communication to be established with his relatives, or guardian, or the relieving officer. The chief difficulty in the matter of after-care was people's shyness to recommend for employment anyone who had been an inmate of an ayslum. If the Mental After-care Association were sufficiently encouraged many mental hospitals would be glad to send out patients under that body's supervision. In his institution in the last three years only two cases of ill-treatment of patients had occurred, both trivial, but in each case the defaulting attendant was dismissed, as the strictest discipline was essential.

Answering Sir David Drummond, Dr. Connell said he thought the study of insanity should receive a better place in the medical student's curriculum, though admittedly the doctor's practice provided him with some experience on the subject.

The Lunacy Act a Protection to the Patient.

The Commission continued its sittings on Wednesday, when Dr. H. Devine (medical superintendent, Borough Mental Hospital, Portsmouth) was the first witness. The Lunacy Act he regarded as an almost perfect instrument of detention, and he did not doubt it protected the patient. Its chief defect from the psychiatrist's standpoint was that it insisted too much that every certifiable patient should be certified. He had only encountered one case which, at the end of a week, he could declare was not insane, and he was an evident malingerer. Still, he thought Poor-law cases, as well as private ones, should be certified by two medical men; it would avert possible public criticism on the ground of discrimination against the pauper patient. The hesitation of Poor-law authorities to go as far as certification might prejudice the patient's recovery by delaying expert treatment. He favoured such patients being brought direct to the mental hospital and being lodged in a detached part of it without certification. He proceeded to detail the procedure when patients were admitted. A maniacal case would be segregated. He was in favour of an asylum constructed as a series of villas, rather than a barrack-like structure. He said that the mental hospital which served a particular town should be in the town itself, and it was desirable that it be recognised as the centre for the treatment of all the mental illnesses of the community; especially was this so in view of the possibility of maintaining social relationships with the outside community; the more social contact the patients could have the better. In answer to the Chairman, he said he did not think every mental hospital should be expected to be a centre for research; smaller institutions would have the benefit of the equipment and the results of the more elaborate. He agreed that certification was a slur on the reputation of the certified, though it should not be. He had known even the children of a victim of puerperal insanity brought up under the idea that they were mentally abnormal. He considered that the Scottish system of simple notification, without publicity or stigma, worked well. If, however, those under this scheme objected to or resented treatment he would have them fully certified. He would not like a hostile voluntary boarder under his care unless, when that occurred, he could be certified. He said that if the Mental Treatment Bill was to be of value it must give power of detention on simple notification of people who were insane but whom it was undesirable to certify, because their condition was hopeful in regard to recovery. Establishments which took in and cared for uncertified cases should be under the control of some central or local authority.

The Chairman reminded the witness that the medical man naturally concentrated on the welfare of the patient, but the public point of view was concerned with the prevention of possible abuses.

General Hospitals and Mental Cases.

Dr. Devine replied that some asked to be taken into the asylum because they did not want to carry out their tendency to commit suicide. He thought there was good ground for the dread of the stigma of insanity, and all possible should be done to delete or minimise it. Still, he did not believe in reserving asylums for only chronic cases. He strongly favoured the idea of dealing with mental cases in general hospitals, especially those to which a teaching school was attached. And it would be good for the profession, as at present the average medical student had the most grotesque ideas on insanity.

The Chairman said the great obstacle was the long duration of mental illness, making it necessary to make provision for a long residence.

Dr. Devine said he agreed, but if this method could be employed, many cases would not reach the asylum stage. It had been successfully carried out in Edinburgh, where alcoholic psychosis, operation psychoses, and many forms of depression, cases brought in by the police, were treated in general wards. In reply to Sir Humphry Rolleston, he said he thought any institution associated with the detention of persons of unsound mind would be liable eventually to have the same unpleasant associations in the mind of the public as asylums now had. But there was hope that the gradual enlightenment of the public on these questions would largely mitigate that feeling. Because of this prejudice, the word "nerves" was often applied to a slight degree of mind disturbance. The Maudsley Hospital would prove a means of educating the public in these matters. He fully agreed that the seriousness of mental disease was its effect on the responsibility of the individual. He thought the element of compulsion in relation to asylums was greatly exaggerated; many of the patients were thankful to get the treatment the asylum afforded. Bearing on the question of the possibility of admitting cases without certification, he said that of the last 50 female admissions 9 were willing cases, 33 were indifferent and confused, and 8 were unwilling and considered themselves the subjects of persecution; they were delusional. Answering a further question, Dr. Devine said he hoped the function of the relieving officer in this regard would be done away with; he advocated a complete dissociation of the subject from the Poor-law. A panel doctor should recommend a case for admission to the public mental hospital. In the case of notification he would have a kind of extended urgency order, thus avoiding the formality associated with the attendance of a magistrate. These patients could be transferred to a nursing home, where they could be under the supervision of some authority. In a general hospital a separate block could be set aside for them, and in a small town one or two villas could be either set apart or built for the same purpose.

He next answered a number of questions on the practice of

Sending Patients Out on Trial,

remarking that even if a patient did not come back according to promise, he was still regarded as in the custody of the asylum and steps were at once taken to recover him and have him cared for meanwhile. He did not think there was any risk of patients being detained in an asylum beyond the time at which they recovered their mental health. He did not think it was necessary to ask justices to share the responsibility in this matter. Asked as to the staff, he said it was sometimes difficult to get the right kind of people as candidates for probation, and the staff, other than the trained nurses, were a fluctuating asylum population. He agreed with Lord Russell that if voluntary treatment was not found to be quite sufficient in a particular case it would be a very good plan to enact the original steps of notification and then for the justice to suspend his order for a period longer than 14 days, for then, if anything went wrong, everything would be in order for actual certification. He declared, in answer to Mr. Snell, M.P., that some cases could not be correctly diagnosed at the first interview, and among the most difficult were the most dangerous, such as paranoiacs and those with delusions of persecution. He had three medical officers in his institution with 800 patients.

Sir Humphry Rolleston asked Dr. Devine whether he thought the Act should be modified in any way so as to protect the doctor from vexatious and unjustifiable actions while still preserving the full protection of the patient.

Dr. Devine thought such might be effected, because the doctor merely took the part of witness in the process of certification. The reluctance of doctors to certify was very great; in fact, some would not certify. He was not prepared to recommend what form such amendment should take. Asked by Sir Humphry Rolleston whether it would not be well that the second certificate should be signed by the medical officer of the institution to which it was intended the patient should go, the witness agreed. Answering further questions, he said he favoured having a clinic in association with the mental hospital, though some criticised such a proposal. His recovery-rate last year was 25 per cent., but he thought the figure would be less for this year; much depended on the kind of cases received.

Advantages of Early Treatment.

Dr. H. Wolseley-Lewis (medical superintendent, Kent County Mental Hospital, Maidstone) was next examined. He said he was present while Dr. Devine gave his evidence, and with it he largely agreed. But in speaking of mental clinics, Dr. Devine rather inferred that they should be clearing-houses for certified cases. His own notion of clinics, especially as applied to the county, was that they should be as near the homes as possible, and that they should be entirely voluntary, and free from the fear of certification. It was of great importance that cases of mental trouble should come into the range of expert treatment at quite an early stage. With that in view the public should be encouraged to resort to them voluntarily, and it would be a pity to have any formal powers of detention of any kind. He agreed it would be unfortunate to have a case sent back to home circumstances at a crisis in the illness; in such an event, the friends could be asked to remove the patient, or the case could be reported to some authority with a request to deal with it. He said that 60 per cent. of all patients admitted to his institution during 20 years were known to have been ill a month or more before admission, and that seemed to constitute a serious indictment of the present system. He meant that that large proportion had been allowed to be without expert treatment until they were bad enough to be certified; in other words, until the general practitioner had been forced to that step. The clinic should have an in-patient as well as an out-patient section, and under such an arrangement he thought a considerable number of the 60 per cent. of admissions would not have been certified. Most recurrent cases were fully aware that they were not well, and would seek treatment long before they reached a certifiable stage. At present they had nowhere to go, except to the general practitioner, who, as a rule, was not very expert in treating such conditions. He did not advocate these clinics being associated directly with the public asylums, but he thought it would be wise for the whole mental health of the community to be under one central authority, and a great benefit if it had no association with the Poor-law at all. Many large country houses might be found available for use as clinics; it would not always be necessary to build them. For puerperal mania, and such conditions, he would like to see operative some powers of temporary detention, to be exercised at the mental hospital, not at the clinic. He would like to see, in county mental hospitals, a large number of voluntary patients who were remaining as voluntary boarders. They would be certifiable people, but not necessarily certified, and he would like all such places to be open to inspection by a Government department and by the local authority too. He would like to make the asylum more popular by removing from it in the public mind the conception of hopelessness; even as it was at present, these institutions were less "suspect" than in former times. Voluntary boarders would have to have their condition periodically reported to the Board of Control, to show they continued to be fit subjects for this method of treatment. Every legal precaution should be taken in the case of those certified, and he did not think the whole of the onus should be put on the medical man, and certainly not upon the medical superintendent of the institution.

Dr. Wolseley-Lewis said that at the present time, out of his 1800 patients, 300 of the women and 200 of the men were in open-door wards, and therefore could escape if they wished to. A considerable number were allowed out on parole. Many had sufficient insight to realise that they were better off inside the asylum than they would be outside it at present. In the case of certified patients, he thought discharge should be granted in the presence of a legal authority.

Pauperised Patients.

Answering Mr. Micklem, K.C., the witness said it seemed to him to be a great hardship that a large number of patients who came to the mental hospital should be pauperised in order to get treatment, as they were not paupers. Clinics should be established by the municipal authorities or by the county. He admitted that he had found relieving officers' work in connexion with mental hospitals had been very well done; but there should be better facilities for taking patients from their homes to the mental hospital, such as by motor ambulances, and a trained staff should accompany those vehicles. At present many patients were induced to come under false pretences; were told often that they were being taken to a convalescent home. He thought certain justices of the peace should make it their business to know something about this aspect of administration.

Answering Mr. Snell, M.P., Dr. Wolseley-Lewis said it was fair to assume that of the 60 per cent. of cases who had been mentally ill a month before admission to the asylum, a fair proportion would not have been certified if early treatment had been given them. He could not commit himself, off-hand, as to the proportion, but it was quite appreciable. Asked as to the training required of the staff, he said the whole matter was dealt with in the nursing report of the Board of Control, of which committee he was a member. It was recognised that for a number of years there would still be "attendants," as distinguished from male nurses. The former were excellent up to a point, but were not highly-trained nurses.

Asked by the Chairman whether he approved, in a general way, of the recommendations of the English Lunacy Legislation Committee of the Medico-Psychological Association, 1918, he replied in the affirmative.

The L.C.C. and Lunacy Administration.

The next witness was Mr. H. F. Keene, O.B.E., Chief Officer of the London Mental Hospitals Department of the London County Council, who set out in detail the regulations and provisions under which the County Council came into relation with lunacy administration. He said there were 28 boroughs having their own special authority under the Lunacy Act. In the case of the City of London, the authority was the Common Council. The local authority must provide the necessary accommodation for pauper mental patients, and it had power to provide that for private patients also. The powers were exercised through a visiting committee. He set out in detail the duties of visiting committees.

The meeting then adjourned to Tuesday, Dec. 2nd, and Wednesday, the 3rd, at 10.30 A.M. each day.

PORTABLE WIRELESS FOR CONVALESCENT PATIENTS.

No one will dispute that broadcasting is likely to prove a comfort to the sick and a help towards convalescence, but there are certain practical difficulties in the instalment of wireless apparatus which hinder its extended use. For instance, the local programme may not be appropriate to the patient's condition, and he may not have a receiver powerful enough to enable him to select from the various broadcasting and relay stations up and down the country, although a good selection of suitable items can generally be obtained from the programme of any one station for three or four days in the week. Again, the conditions in a private house are not as favourable as those in hospital where wireless is now being "laid on" almost as a matter of routine. The ordinary apparatus requires to be connected both to earth and to an aerial, neither of which can be improvised at a moment's notice. A self-contained wireless receiver which could be carried from room to room and used with either head-phone or loud speaker would be very welcome where sickness or convalescence is concerned. We have made some little inquiry as to whether such apparatus is to be bought at a moderate price, or hired where the need is only temporary.

Messrs. REES MACE AND CO. (50, Pall Mall, London, S.W. 1) supply a portable wireless set contained in a wooden case about 16 in. by 16 in. by 4 in., and weighing 30 lb. Placed upon a table during broadcasting hours, it is only necessary to attach a loud speaker or head-phones, to open the door of the case, and to turn a control knob when the sound comes through with perfect clearness provided the distance from the broadcasting station is not too great; we have tested it ourselves with satisfaction at a distance of eight miles, and with proper adjustment we understand that it can be used at twice the distance or more. Naturally, with an aerial the distance could be greatly increased. Something, too, depends on the loud speaker, for with a little box known as the "Celestion," about 12 in. by 5 in., a clarity of tone was realised closely simulating the actual presence in the room of the entertainers. Much ingenuity is apparent in the construction of the receiver. The batteries, which inevitably add substantially to the weight of the instrument, require attention not more than once in six months. A fuse makes it impossible to burn out the valves by careless handling, while the cushion placed between the valves and their socket minimises the risk of accidental jars. The whole adjustment can be learned by anyone in a minute or two. Three different forms of the Rees-Mace All-in Wireless Set are supplied. The one-valve set, for use with head-phones only, costs £12, and is let out on hire at 17*s.* 6*d.* per week. The two-valve set, price £19, or 21*s.* a week, has a greater volume and clearness of tone and takes a loud speaker. The three-valve, price £22, or 25*s.* a week, makes the loud speaker available at an increased range.

Messrs. SIEMENS BROTHERS AND CO., LTD. (Woolwich, London, S.E. 18), supply an instrument at £39 (less 10 per cent. discount to hospitals which undertake not to re-sell it), measuring about 16 in. by 11 in. by 10 in., and weighing 28 lb., which contains a small internal frame aerial which can be turned to any direction, thus assisting to prevent interference, and with a range of 15 miles. The dry cells it contains last from three to four months. There are three dull emitter valves, of which one, used as a note magnifier, can be switched on and off as required. By adding plug-in coils the continental stations are caught. The apparatus is simple to regulate and there is little risk of damage from an inexperienced person.

THE WESTERN ELECTRIC COMPANY, LTD. (Connaught House, Aldwych, London, W.C. 2), supplies many interesting sets which can be used with a frame aerial, and one without, price £17 17*s.* 6*d.* (10 per cent. discount to hospitals). A suitable amplifier is supplied at £5.

THE METRO-VICK SUPPLIES LIMITED (4, Central Buildings, London, S.W. 1) supply five-valve sets ranging in price from £32 to £74, which give satisfactory results without outside aerial.

THE CITY ACCUMULATOR COMPANY (10, Rangoon-street, London, E.C. 3) is showing at the "White City" Wireless Exhibition a portable receiver for which many advantages are claimed. Weighing only 16 lb., measuring 14 in. by 12 in. by 8 in., and with a range of 20 to 25 miles using a loud speaker, this instrument is produced at a cost of £20 plus Marconi royalties of 50*s.* Components are supplied which would enable an invalid capable of doing light constructional work to assemble his own receiving instrument on a small scale. A specimen was shown of such work actually carried out by a patient while lying in bed in the Special Surgical Hospital at Shepherd's Bush; this was an excellent crystal receiver of the two-circuit variety, the wiring being particularly neat.

Many of the firms showing at the Exhibition supply components for this kind of work, one of the number being the IGRANIC ELECTRIC CO., LTD. (149, Queen Victoria-street, E.C. 4), whose radio-devices are well known among amateurs. Messrs. W. BULLEN (38, Holywell-lane, E.C. 2) devoted a whole stand to loud speakers in great variety. Another firm with devices which will appeal to the invalid constructor is Messrs. PETTIGREW AND MERRIMAN, LTD. (122, 124, Tooley-street, S.E. 1).

The Marconiphone Company Limited at the moment are unable to provide facilities for convalescent patients who may desire to listen to broadcasting. In the early days of the industry they did loan, and in many cases presented, sets to various hospitals and similar institutions, as well as giving demonstrations in Marconi House. But for some time past they have been reluctantly compelled to discontinue the practice of loans.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 29, 1924.

THE GENERAL MEDICAL COUNCIL.

The 120th session of the General Medical Council, which was opened on Tuesday last, was presided over by Sir Donald MacAlister, whose presidential address will be found in another column. There is much in the programme thus outlined, and in the activities briefly alluded to, of widespread interest; taken as a whole the record shows the Council to have a steadily increasing range of duties and to be undertaking responsibilities of the most important character. The position as regards the Irish Free State and the jurisdiction of the General Medical Council is, for example, a delicate one, and the Council are rightly considering the matter in camera. It may be difficult to find the exact course which will satisfy the inclination of all, but the situation ought to be made definite without further delay. The relations of this country and Italy on the matter of reciprocity in practice are in an anomalous phase, for privileges at the present moment are being withdrawn from British practitioners in Italy which are extended to Italian practitioners in this country. Such matters require statesman-like adjustment, and the same may be said of the course to be adopted in respect of the degrees granted by certain Indian universities. For example, the recognition of the Calcutta University degrees as conferring a title to registration and qualification for practice in the United Kingdom is in risk of being withdrawn unless some argument stimulating that University to the necessary action can be speedily found.

The time of the Council is being occupied, as usual in the November session, mainly with cases of discipline where the Penal Cases Committee has found that evidence calling for inquiry and for answer on the part of a practitioner is forthcoming. In view of the statements recently made in several quarters that practitioners of high standing have disregarded the warnings of the Council in respect to advertisement, the President's reminder is timely that the Council cannot institute an inquiry without the submission of substantial prima facie evidence. We have on several occasions recently pointed out to correspondents that there was no reason to suppose that certain advertisements complained of had directly or indirectly emanated from the practitioner concerned, and more than once we have been in possession of a disclaimer to that effect before the complaint had been received. The general impression of our readers, however, is that considerable laxity now prevails, so that a further indication of awareness in the body of the General Medical Council would be timely.

MINERS' PHTHISIS ON THE RAND.

The report[1] for 1923 of the Miners' Phthisis Medical Bureau of the Union of South Africa is packed with interesting information. The bureau is concerned, under an Act of Parliament, with the investigation of industrial pulmonary diseases on the Rand, and the report records the clinical, pathological, and statistical operations which have been carried out during the year. It is not easy reading. A considerable proportion of the 40 pages of which it is composed is occupied by tables and schedules of clinical and pathological examinations, of the incidence and distribution of silicosis and tuberculosis, of subsequent histories, and so forth. Interspersed are explanatory paragraphs, but these are so condensed as to add but little to the enlightenment of the non-technical reader. A more detailed discussion of the data supplied and of their significance—a general survey, in fact—would indeed add greatly to the value of this publication, the importance of which may not be obvious to those who have not studied carefully the previous reports.

Elaborate methods of examination and careful case records have resulted in the attainment of a high degree of excellence in diagnosis, but at the same time the possibility of errors in the clinical data can scarcely be negligible. Is it possible to differentiate invariably and with certainty between simple tuberculosis, tuberculosis with silicosis, and simple silicosis in its forms ante-primary, primary, and secondary? Inasmuch as the pathology of miners' phthisis is still uncertain, this is a matter of considerable importance in the elucidation of the disease. It would be of great interest, for example, to know whether there is a reasonable possibility of the silicotic person becoming physically normal again if he relinquishes mining for some other occupation. The report suggests that change of environment has a relatively slight effect upon the subsequent history of the majority of cases, because "the great majority of cases of simple silicosis owe their earliest detectable development to the presence of an occult tuberculous element," and goes on to say that "the miner with simple silicosis is specially liable to become a source of tuberculous infection to others." The latter statement may mean that a tuberculous infection superimposed on a state of silicosis tends to be unusually acute and to give rise to the excretion of larger numbers of bacilli than does a simple infection. But put together these quotations suggest that the diagnosis is by no means an easy matter. This opinion is strengthened by the statement that simple silicosis is diagnosable pathologically by the development of areas of more than microscopic size from the minute lesions which are present normally in dwellers in the Transvaal. "This change appears to be the result, in at least many instances, of a peculiar form of tuberculous infection generalised throughout the lung; although, unless other and more orthodox indications of tuberculosis subsequently appear, the condition is still considered to be one of simple silicosis." The clinical diagnosis of simple silicosis must rest on pathological controls, and it is reasonable to limit the pathological diagnosis of silicosis to those cases in which the condition can be recognised in the lungs by unaided vision and touch, since the majority of the inhabitants of the Rand apparently show a certain number of microscopic lesions. But, on the other hand, a hardly justifiable latitude appears to be allowed to the radiologist, for "as a result of continuous improvement in apparatus and procedure, however, it can now be alleged that if a technically satisfactory radiograph, taken within a few months of death, has not disclosed the earliest signs of simple silicosis, these will not be discovered by the pathologist. It has indeed been remarked, on more than one occasion of late, that the radiographic evidence appeared to be more pronounced than that afforded by subsequent post-mortem investigation."

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[1] Report upon the Work of the Miners' Phthisis Medical Bureau for the Twelve Months ending July 31st, 1923. Cape Town: Cape Times, Ltd., Government Printers. 1924. 3s.

From the broad pathological point of view the study of miners' phthisis is of interest mainly because of the light it may throw on the influence of accessory factors on microbic infections in general. Unfortunately the data in the report would scarcely seem capable of affording much assistance in the elucidation of this question. It may be noted that the evidence available does not lend any support to the view that silicosis and chronic interstitial nephritis are in any way related.

A CLASSICAL CASE OF MISTAKEN IDENTITY.

Just 20 years ago, in The Lancet of Dec. 3rd, 1904, we had occasion to comment on one of the most disquieting errors of identification in the annals of medico-legal history. A brief outline will recall the curious story. In 1877, 1895, and 1904 a man of German origin known as John Smith, and by various aliases, made a practice of robbing women, mostly prostitutes of the humbler class, of small sums of money and of rings and other articles of no great value, imposing upon them by giving himself fancy titles and by handing them what purported to be cheques, which were, of course, drawn on fictitious accounts. In 1877 Smith was convicted and sentenced to five years' penal servitude. In 1895 he avoided detection because a man called Adolf Beck, a Norwegian by birth, who, unfortunately for himself, was a needy adventurer of no good character, was mistaken for Smith by one of the women whom the latter had defrauded, and was arrested on her complaint. Several other women came forward and made the same mistake, for Beck, no doubt, bore a superficial resemblance to Smith in stature, face, and manner of dress. A communication made to the police, who had quite forgotten Smith, caused them to identify Beck as the former convict, at a date when a loose and unmethodical system of dactylography prevailed. Beck was tried at the Old Bailey before Sir Forrest Fulton, who had prosecuted Smith in 1877, was convicted and sentenced to seven years' penal servitude. The Common Serjeant, as Sir Forrest Fulton then was, helped to perpetuate the error of the police by shutting out the defence which Mr. (afterwards Sir) Charles Gill endeavoured to raise—namely, that the crimes of 1877 and those before the court, owing to the similarity of the methods adopted, must have been perpetrated by one and the same man, and that Beck was not in England when the first series were committed.

Beck went to prison as a previously convicted person, and although while at Portland he established the fact that he was not Smith, by proving that he had not been circumcised, whereas Smith had, he only succeeded in having his prison badge altered. At this point the Home Office and Sir Forrest Fulton were given the opportunity to set wrong right and failed to do so. Beck made every effort, as did his solicitor, to have his case properly investigated, but from his arrest to the day when he was finally declared innocent he was the victim of a lack of coördination and collation, of sympathy, industry, and intelligence on the part of police (who were least to blame), of prison authorities, lawyers, Treasury, and particularly the Home Office that gave a rude shock to some complacent people when the various stages of the muddle were gone into. This elucidation probably would never have taken place if Beck had not been arrested and tried again in 1904 for more offences of the same kind committed by Smith. Beck was found guilty, but Mr. Justice Grantham, who later professed to have had doubts about his guilt, had postponed sentence, when meanwhile Smith, whom success must have made reckless, having continued his evil acts, never even varying his methods, was caught red-handed. An intelligent detective, Mr. Kane, then recognised the fact that Smith and not Beck was the guilty man, and through his action at last justice was done. The interest of Beck's case lies largely in its exposure of the fallibility of justice, however honestly and impartially administered, and of the fallibility of more or less interested or revengeful witnesses when trying to identify a prisoner upon a carelessly observed resemblance.

This case was one of the principal causes of the institution of the Court of Criminal Appeal, and is now fitly included in the excellent notable British Trials Series.[1] Mr. Eric Watson, whom we should describe as editor rather than as author of the volume, has contributed a clear and exhaustive introduction, and has brought together material from official sources sufficient to make the book an interesting record of an historic miscarriage of justice. Several minor points are of especial interest. For example, the "cheques" given in the two cases of 1874 and 1895–96 proclaimed themselves the work of one man, and Mr. Watson might have made this even clearer if he had been able to include in his illustrations reproductions of one or two of these documents relating to each period. A great deal was made after Beck's final acquittal of the point of circumcision referred to above, but comparison of the official descriptions of the two men showed that even the colour of their eyes and the distinguishing marks on their bodies differed. And if this was not enough, there were extant photographs of both taken in prison. Profile photographs of Smith and Beck, reproduced by Mr. Watson, show that, unless the prisoner of 1896 had entirely altered the shape of his ears in 20 years, adding to them lobes non-existent when Smith was at Portland, a different man was being charged with exactly the same crimes in 1896 and in 1904. The wrong identification of Beck, which even eventually confused him with Smith, was as inexcusable as was the failure of the Common Serjeant and the Home Office to recognise the true nature of his defence. The giving of evidence by accused persons, the finger-print system of identification, the Court of Criminal Appeal, and the mitigation of sentences are improvements in our penal system of which we may justly be proud, but a careful study of Beck's story is nevertheless to be commended to lawyers and to judges.

Dr. Mary Lucas-Keene has been appointed to a chair of anatomy in the University of London, tenable at the London (R.F.H.) School of Medicine for Women. This is the first chair of anatomy to be held by a woman.

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[1] Adolf Beck (1877–1904). By Eric R. Watson, LL.B., author of Eugene Aram: His Life and Trial; Member of the Medico-Legal Society. Edinburgh and London: William Hodge and Co., Ltd. 1924. Pp. 296. 10*s.* 6*d.*

Annotations.

"Ne quid nimis."

TEACHING ON CONTRACEPTION IN MEDICAL SCHOOLS.

THE need for disentangling the medical from the racial and religious aspects of contraception is manifest to those who have attempted to follow the swings of the pendulum in the libel action, Sutherland *v.* Stopes, which has come finally to rest in the House of Lords after violent oscillations. The House, by a majority, allowed the appeal from a judgment of the Court of Appeal, the result being the restoration of the judgment of the Lord Chief Justice of England for the defendants in the original libel action—Dr. Halliday Sutherland and his publishers and printers. Previous stages of this action have been recorded in THE LANCET (1923, i., 504; 1923, ii., 236), and we may have occasion to return to the consideration of the legal aspects. In the meanwhile, we would draw attention to the fact that the decision in this case has no bearing on the broad problems of birth control. The Lord Chancellor, in giving judgment, saw fit to exclude from the concern of the House "any question as to the desirability of the use of contraceptives, or as to the propriety of encouraging such use by the circulation of printed matter, or in any other way." Lord Wrenbury, however, in his dissenting judgment, commented on the indirect issues involved. He said there were cases in which the health and happiness of the woman were impaired by too rapid successions of conception. There were cases in which the parents' means did not allow of the proper maintenance, education, and advancement of more than a limited number of children. There were cases in which the mental or bodily health of the parents forbade or ought to forbid the procreation of defective children. Again, there were those who thought that in none of these cases ought control to be exercised. There were those who thought otherwise. In both of these categories will be found eminent doctors. It is unlikely that uniformity of thought could yet be present either on the main question whether contraception is ever justifiable or even, if the principle is accepted, on the technique least likely to do harm. For example, Prof. Louise McIlroy was quoted as having stigmatised the check pessary as the most harmful method of which she had had experience; other specialists could doubtless be found who would prefer it at least to coitus interruptus. The majority of young doctors would readily admit that the subject was not referred to in their curriculum, and that they are not competent to weigh the social and domestic consequences of enjoining complete abstinence in married people who for economic or medical reasons should not produce a large number of children, against the alternative of giving instruction in appropriate methods of contraception.

A timely demand for critical instruction on this and cognate points from the medical rather than the emotional standpoint is made by Mr. C. P. Blacker in a survey of the subject published in *Guy's Hospital Gazette* of Oct. 11th. The essential point of his letter is a plea for the instruction of medical students in the principles and technique of contraception. We ourselves urged this course nearly four years ago [1] on the same grounds—that the apathy of medical men is largely responsible for the general dissemination of knowledge of birth control from an emotional rather than a medical angle. Nor is it only on this aspect of sexuology that text-books are silent. Mr. Blacker cites as untaught the period after conception during which sexual intercourse may properly be continued and the period after labour at which it may safely be resumed. Incidentally, this latter point might well have a bearing on the incidence of sepsis after childbirth. We commend Mr. Blacker's exposition of the problems of contraception as worthy of careful study. He has made out a good case for the inclusion of a chapter on birth control in every manual of obstetrics, and it is unlikely that the subject can much longer be ignored in these works.

THE HEALTH OF MERCHANT SEAMEN.

THE Conference of Port Sanitary Authorities, meeting at the Liverpool Congress of the Royal Sanitary Institute in July, forwarded to the Council of the Institute two resolutions, the first complaining of the inadequate report on the deaths of seamen put forward this year by the Board of Trade, the second asking that the health of seamen should be the care of the Ministry of Health. These resolutions have now been considered by the Parliamentary Committee of the Institute, which has suggested to the Board of Trade that the classification of the deaths of seamen should be remodelled on the lines of that adopted by the Registrar-General for the use of local authorities, and has also decided to forward to the Board of Trade and to the Ministry of Health a resolution urging that the care of the health of seamen should be given in charge of the Ministry of Health. The Royal Sanitary Institute is doing good work in thus keeping before the official gaze the need for the supervision of the health of merchant seamen.

MEASLES TWICE.

IN a festal number of the *Wiener Klinische Wochenschrift*, issued at the time of the Innsbruck meeting of the Society of German Naturalists, Prof. Johann Loos writes about second attacks of measles. He is speaking from personal experience at the Children's Clinic in the University of Innsbruck and from recent critical studies of the literature, and he answers the question submitted to him just in the same way as the author of snakes in Ireland was answered. There are, he says, no second attacks of measles. Prof. Loos does not go so far as to contend that no human being can get measles twice, but no convincing case of second attack has ever come before his own notice, and the three cases he relates, in which the opposite seemed to be true, are instructive in showing the kind of evidence on which honest but faulty conclusions are based. The first concerned a child brought to his department with undoubted measles and the statement that six months previously the child had had an attack in the clinic diagnosed as measles by one of Loos's own assistants. The notes of the case when referred to were detailed enough to show that this attack had been one of rubella; no second case of measles had followed on it. The second related to a teacher's family of nine children, who all had uncomplicated measles about the same date and recovered. A year later the eight-year-old daughter came to the clinic with a typical attack of measles. The parents were at first confident that this child had suffered along with the others, but on being pressed admitted to having overlooked the fact that she had spent her summer holiday with friends at the time of the occurrence and had consequently escaped. The third case was that of an assistant in Loos's clinic, who had what looked very like measles at the time of an epidemic in the clinic, although he had certainly had measles as a child, when his sister died of it. The absence of Koplik spots satisfied Loos that the present attack was one of influenza associated with a drug rash, and he was confirmed in this conviction by the fact that this assistant had been in contact with many cases of measles in recent years without becoming infected. Prof. Loos supports his own convincing personal experience by citing numbers of authorities who agree with him—Meissner, Bohn, Jürgens, Filatow, and others. Having critically examined the series of cases where his own experience might so readily have led him to form a faulty conclusion, he sets aside as irrelevant all the current loose talk of second attacks. Chicken-pox and mumps he has never observed twice, and he doubts if he has ever seen a second attack of whooping-cough.

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[1] THE LANCET, 1921, i., 677.

MIDWIFERY, ANCIENT AND MODERN.

The issue by The Lancet of a Special Supplement on Modern Methods in Abnormal and Difficult Labour has moved an archæological contributor to send us notes upon eighteenth century midwifery for contrast. The notes consist mainly of comments on the advice given in the well-known work of Hugh Chamberlen, which was itself a translation of the text-book of François Mauriceau, "sworn master Chirurgen of Paris." From the period of the later Stuarts onward to that of George II. and George III., this was the standard text-book on midwifery and the diseases of women in England, and in its English form appears as the "Diseases of Women with Child, and in Child-bed." It was first published in 1683, and the third edition is of date 1697. The translation is interesting not only because it was the source whence the early men-midwives such as Smellie and William Hunter derived their knowledge in their student days, but also as showing how rational on the whole had been the craft or practice of midwifery from remote times to a period when surgery and medicine may be said to have become modern. "The work shows," writes our correspondent, "how an ancient form of knowledge evolved and gradually became free from mediæval absurdities. Chamberlen's translation ran through several editions, but in all the preface remains unchanged. It contains the notable passage in which he refers darkly to the secret method employed by his family in cases of difficult labour. This was quoted at large by Dr. Aveling in his work on the Chamberlens, published in 1882. 'I will now take leave to offer an apology,' says Hugh Chamberlen in a closing passage of his preface, 'for not publishing the Secret I mention: we have to extract children without Hooks, where other Artists use them—viz., there being my Father and two Brothers living, that practise this Art, I cannot esteem it my own to dispose of, nor publish it without injury to them. Still,' (he continues), 'we four are the people who can serve the public in their extremities with greater safety than the persons who extract the child from the womb with the help of hooks fixed in the neck.' The Chamberlens kept their secret, the use of the midwifery forceps, till well on in the eighteenth century, when poverty compelled Hugh, the elder, to sell it to a Dutch obstetrician named Roonuysen. Thus, the preface to a work in the main rational refers to a trade secret, and in so far as it does that belongs to a vanished period of medical procedure." "Here and there throughout Mauriceau's work," continues our correspondent, "mediæval curiosities survive and are sometimes allowed to pass without protest by the translator, whose marginal notes are at other times full of common sense. Thus 'we'll now pass to convenient remedies for the belly of a new-lay'd woman,' says Mauriceau. 'All authors do appoint, immediately after delivery, the skin of a black sheep flaid alive, for this purpose, to be laid all over her belly, and to lie on four or five hours; others will have a hare-skin. Truly, I believe that by reason of the natural heat of such skins, the remedy is not bad.' But it is 'of too much trouble,' for a butcher must be at hand in the lying-in room, 'or at least in the house, that so they may have the skin very hot according to directions.' The same work likewise directs 'a small plaister of galbanum, with a little civet in the middle,' to be applied to the woman's navel, which as they imagine is very proper to keep the womb in its place, because being delighted with that smell, it draws near to it of itself." . . . "But this remedy is a little superstitious," adds Mauriceau, yet 'practice and success commend it' (comments Chamberlen). "Nor is there reason wanting to defend it; wherefore notwithstanding the author's sense, it may be successfully continued."

The use of the colour red as a cure or prophylactic takes us back to the medicine of savages. Thus a pregnant woman injured by a fall was often advised by the midwives and by some authors of Mauriceau's period "to take some crimson silk, small minced in the yolk of an egg, or the grains of scarlet [kermes, derived from "the grains of the scarlet oak," *Bailey's Dict.*, Edit. 8, 1737], and treddles of several eggs put into the yolk of one, as if that entring the stomach were able to fortify the womb and the child in it, and to keep it there." Mauriceau is of opinion that reason and truth are against this, but Chamberlen asks, if this be so, "how then do inward medicines either prevent miscarriage or forward travail?" To prevent "headmouldshot," a condition referred to in old bills of mortality, which has puzzled the moderns, a Frenchwoman often applied a piece of scarlet cloth to the child's head and kept it there for some time. Mauriceau devotes a chapter with two illustrations to headmouldshot, and entitles it "Of the mould of the head, and of the sutures being too open," the first explanation we have seen of the phrase. "Shot" is written "shotten" by Chamberlen, and "shotten" is explained by Bailey in his dictionary as "curdled," or, better still, as overlapping. Red curtains, Mauriceau notes, are hung by some round the bed of a child ill of small-pox, "because this colour doth ordinarily move the humours from the centre outwards . . . many antient as well as modern physicians attribute the cause of the disease to the residue of the menstrous blood, wherewith the infant was nourished in the mother's womb." Chamberlen, tending towards rationality, prefers green to red as being more soothing to the eyes. He notes on several occasions that French methods differ from English in such matters as swaddling and the bandaging of the baby head. Mauriceau's long description of his sister's tragic death from flooding, when before the age of 21 she was brought to bed of her *fifth* child, does not surprise his commentator, who imagines similar cases in England to be caused by the vanity and ignorance of midwives and physicians.

ON THE MUSCULATURE OF THE LUNGS.

Except in the case of asthma the pathologist and clinician are both alike inclined to overlook the importance of the musculature of the lung, and a careful piece of work by Dr. Joseph Harkavy in the *Journal of Pathology and Bacteriology* (October, 1924) is a timely contribution to this subject. Starting from the histological work of Husten, Miller, and others, the writer points out that the entire lung is extraordinarily well supplied with musculature, and goes on to ask the pertinent question what is the function of this musculature and what alteration takes place in disease? With these questions in view he investigated 176 lungs obtained from cases of cardiac disease, pneumonia, broncho-pneumonia, and pulmonary tuberculosis. Excluding the cases in which no changes in the musculature were found, the writer divided his positive findings into four groups. The first group contained lungs from cases of cardiac disease. Here was found marked increase in the musculature of the alveolar passages and of the muscle ring of the bronchiolus respiratorius, occurring most commonly in pure mitral stenosis. Elastic tissue was also found to be increased. In the second group were lungs from cardiac cases in which pulmonary induration and pleural obliteration were present, and these showed a more general increase of musculature affecting the indurated lung parenchyma, vessels and septa, and especially marked in areas of scars and indurated pleura. The third group contained cases of total pleural obliteration with evidences of old tuberculosis, in which the increased musculature was chiefly evident in the interstitium and in the quantity of the muscle sheets in the thickened pleura, with new-formed blood-vessels, multiplication of pleural elastic tissue fibres, and hypertrophy of the muscle round about the areas of compensatory emphysema. The fourth group comprised cases of emphysema, pulmonary cirrhosis following pneumonia, anthracosis and pulmonary œdema of nephritic origin, and were characterised by the irregular nature of the muscle hypertrophy, some areas showing marked hypertrophy and others none. The changes seen were chiefly thickening of the muscle of the alveolar pillars, of the alveolar passages, especially in the vicinity of pleura and septa, wherever chronic obstruction to expiration had taken place. After discussing various possible theories of causation of hypertrophy of this system of musculature the writer points out that two forces are concerned—viz., movement of the chest wall and respiratory action of the lung proper. When the former is restrained by disease, compensatory hypertrophy of the musculature of the lung results. That this musculature takes an active part in respiration is clear, and its response to disease by increased action on the arterial side of the alveolar passages, on the large vessels of the interstitium, and the lymphatics of the septa, therefore, seems likely. Many years ago S. West[1] suggested that we might "compare the lungs with the arteries and speak of 'pulmonary tone' just as we do of 'arterial tone,' and connect the tone in the lungs as we do in the arteries, with the condition of the muscles, and possibly of the nerves." In an article containing some beautiful illustrations of the musculature of the lung, W. S. Miller[2] has further shown that the bronchial musculature is arranged very much in the form of a network made up of geodesic bands which prevent any tangenial motion, thus permitting the greatest amount of extension and contraction of the bronchioles and their subdivisions., Muscle bands, indeed, penetrate much further along the ramifications of the bronchial tree than physiological text-books would lead us to suppose; they extend as sphincters to the openings of the alveoli into the bronchioles respiratorii, but there is no muscle in the walls of the air spaces. The implications of these researches may be considerable; vital capacity and the phenomena of dyspnœa as applied to emphysema and other chronic pulmonary diseases must all depend, amongst other factors, upon the bronchial musculature—an anatomical mechanism hitherto only very imperfectly understood.

NICE NOISE.

THE dreadful noise of towns becomes worse and worse. Complaints reach us from various sources of the loss of sleep occasioned thereby in hospitals and nursing homes. Some physicians and surgeons regard this noise as a serious impediment to their patients' chance of recovery, and at the least it tends to retard convalescence. Mr. E. V. Lucas has described the motor-bicycle with internal trouble as the second noisiest thing he knows; and the editor of *Psyche* includes it in a leading article with the new form of pavement breaker and alludes to the gratuitous and ever-increasing hubbub of newsboys, street organs, bells and the like in residential areas. Time was when such noises were more or less confined to business areas, but they are now ubiquitous. The remedy is hard to seek. It is impossible to fit bedrooms in nursing homes and wards in hospitals with double-paned sound-proof windows without interfering with the necessary ventilation. The patient may plug his ears and so obtain a quiet night, but it is not everyone who can tolerate the presence of a meatal tampon. It seems too much to hope that the motorist can be induced altogether to abandon the use of his hooter after dark, although, as Sir Lenthal Cheatle has pointed out, with careful driving most of the motor-horn emissions are quite unnecessary. Persons in rude health are able to focus unpleasant noise on their deaf spot and find it hard to realise, until they are ailing themselves, how noise may rack the nerves of others. .

A temporary solution is probably to be found in the substitution of nice noise for horrible noise. Sir Henry Hadow's address on Wednesday at the Royal Hospital, Chelsea, was devoted to the healing influence of music, and Sir Bruce Bruce-Porter has attributed the high turnover of a hundred beds per month at the Third London General Hospital during the war to the distraction provided by gramophones and concerts. The distinguished pianist, Mr. Moissye Boguslawski, invited to the wards, at the instance of the staff of the Chicago State Hospital, never found an individual who did not respond in some way to rhythm, and Dr. Michael Grabham writes this week in our columns on personal experience of the therapeutic value of music. Folk-songs seemed to have special value. The Chicago Commissioner of Health remarks that the nurse or hospital attendant who hums or sings softly while near the patients seems to inspire confidence and contentment. That may have its risks, and all these means are only available to some on a few occasions. But the advent of wireless transmission has brought the temporary bedrid into touch with beautiful sounds by the mere turning of a button. In another column we set out some of the facilities as they exist at present for convalescent patients to obtain wireless sets. No doubt the supply will increase as the need for them is realised. The demand is sure to come.

EPIDEMIC DIAPHRAGMATIC PLEURISY.

IN the October number of the *American Journal of the Medical Sciences* Dr. Robert G. Torrey, of the Philadelphia General Hospital, states that during the summer of 1923 an epidemic occurrence of an acute febrile condition characterised by severe pain in the epigastrium or chest was reported to the State Board of Health of Virginia by Maude M. Kelly as observed by her in two counties of the State. A subsequent report was made under the heading of "epidemic, transient, diaphragmatic spasm," by Payne and Armstrong,[1] who regarded their series of cases as representative of a fairly widespread epidemic, and considered the condition to be a definite clinical entity. The disease was prevalent in the latter part of the summer of 1923 in the Middle Atlantic States, particularly Virginia and New Jersey, where it was popularly known by the name of "Devil's grip." Dr. Torrey, who records four illustrative cases in adults, states that the onset is sudden and often accompanied by a distinct chill, the temperature rising to 102°–104° F., and the pulse usually following the temperature. Pain is the main symptom, occurring in the epigastrium or back or in the lower part of the chest. It is aggravated by breathing or by movement. It is increased during the febrile attacks and decreased as the temperature drops. With the pain there may be marked tenderness which may persist after the pain has disappeared. There may be only one attack, but there are usually recrudescences of pain and fever occurring at intervals of 24 or 48 hours. Headache is a usual symptom and is generally frontal. Profuse sweating is characteristic and occurs late. Prostration is not marked as in influenza. There is an absence of lung involvement and pleural friction has not been heard. The knee-jerks may be diminished or lost, but promptly return to the normal. The prognosis is good. No deaths have been reported. As a rule recovery is prompt and complete. The pain is probably due to involvement of the diaphragm or diaphragmatic pleura. The headache and reflex nervous disturbances indicate some degree of nerve tissue involvement by the toxin. In the same number of the journal as Dr. Torrey's article Dr. James C. Small describes under the name of *Plasmodium pleurodyniæ* a protozoan organism which he has found within the red cells of patients suffering from the disease, different stages in the cycle of its development being observed. The organism is differentiated from those of the malarial group in its staining characters, morphology, absence of pigment granules, and lack of a distinctive action on the contiguous portion of the red cell enclosing it.

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[1] Samuel West: Diseases of Respiratory System, ii., 628.

[2] Amer. Rev. of Tuber., 1921-22, 5, 689.

[1] THE LANCET, 1923, ii., 1097.

EFFECT OF RICKETS ON GROWTH.

AN important addition to the literature on this subject has just been made by Dr. George Rose in his annual report to the Aberdeen Educational Authority. Following up an inquiry made in 1911 and 1912 into the incidence and consequences of rickets among 5-year-old entrants he now publishes the results of examination of the same children eight years later. The investigation was carried out in four school terms of 1911 and 1912. All entrants of 5 years of age were examined by Dr. Rose himself, special attention being given to signs of rickets. The children examined totalled 3742, a number quite sufficient to put the inquiry on a statistically sound basis, and an average of 37·4 per cent. showed signs of rickets. Children from poor homes were most frequently, and most seriously, affected. The average heights and weights of rickety and non-rickety children were then compared as follows:—

	Boys.		*Girls.*	
	Height in inches.	Weight in lbs.	Height in inches.	Weight in lbs.
Non-rickety	41·5	40·9	40·8	39·4
Rickety	39·9	36·7	39·5	34·7
Difference	1·6	4·2	1·3	4·7

Eight years later, having reached the age of 13½, the same children came up for examination by Dr. Rose, and practically the same proportion, 37 per cent., showed traces of rickets. They were again lower in weight and shorter in stature:—

	Boys.		*Girls.*	
	Height in inches.	Weight in lbs.	Height in inches.	Weight in lbs.
Non-rickety	56·2	82·0	57·6	83·0
Rickety	54·1	72·9	55·0	72·4
Difference	2·1	9·1	2·6	10·6

These investigations show how, with the exception of certain individual cases, chiefly among the well-to-do, the child who has suffered from rickets in early life will, at 13 years of age, be considerably under the average height and weight of the normal child, and Dr. Rose points out that the presence or absence of rickets is an important factor in assessing the average height and weight of older children. "While by taking thought we cannot add a cubit to our stature," he writes, nevertheless, "by proper dieting and good hygiene it would be possible to add two to two and a half inches, and from nine to ten and a half pounds, to the height and weight of over a third of our 13-year-old boys and girls, which would increase the average heights and weights in the community."

MYOSITIS INFECTIOSA.

AN account of seven cases of myositis infectiosa, treated in a hospital in Upsala, has recently been published in *Acta Chirurgica Scandinavica* (Vol. LVII., fasc. v., 1924) by Dr. Göran Holm, who points out that this term should not, according to some authorities, be applied to any and every case of metastatic infection of the muscles, but should be reserved for those cases of acute purulent inflammation of the muscles in which they are the first or only localisation of the disease. Its geographical distribution seems to be very uneven: Japanese writers have recorded as many as 250 cases. Men are more subject to it than women, and of the 56 cases collected by Dr. Holm in which the sex of the patient was recorded, as many as 38 were males. In most cases the onset of the symptoms is fairly acute; there are rigors, fever, and pain in the muscles involved. In two of Dr. Holm's cases the transition from feeling well to feeling very ill was as abrupt as if a gastric ulcer had perforated. But, as another of Dr. Holm's cases showed, and this case terminated fatally, the onset of the disease may be insidious, and for a week or more there may be ill-defined influenzal symptoms. Between these two extreme types there are various transitional forms. The first local sign is spontaneous pain in the muscles, which on palpation and active movement become still more painful. When the characteristic swelling has developed there is no longer any excuse for ascribing the pain to "rheumatism," and as the local reaction grows in intensity the muscle may become very hard. This muscular rigidity tends to disguise even a large abscess within the muscle, and though it may be difficult to demonstrate fluctuation, an incision sometimes yields much pus. Muscular rigidity is apt to prove deceptive, and in this connexion Dr. Holm refers to the case of a 9-year-old girl in whose thigh muscles a swelling, fully as large as a hen's egg, could be felt when she was admitted to hospital. Under treatment with fomentations and rest in bed the swelling disappeared almost completely, and it reappeared only after vigorous palpation in search of the tumour had again made the muscles contract. They remained hard and contracted for at least ten minutes. The large muscles of the limbs, the gluteal muscles in particular, are most subject to this condition, whereas the muscles of the abdomen and back are seldom involved. As a rule, only one muscle is diseased, but cases in which there are two or three different localisations are not altogether rare. Two of Dr. Holm's seven cases terminated fatally. Staphylococci were found in three cases, streptococci in one, and a mixed infection with staphylococci and streptococci in another. Both these last two cases were fatal. The pus was sterile in another case, and in yet another case it was reabsorbed spontaneously. The treatment indicated in most such cases is free incision with adequate drainage.

THE MEETING OF THE FELLOWS AND MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A BRIEF account of the annual meeting of the Fellows and Members of the Royal College of Surgeons will be found in another column, in which once again the gathering passed a resolution, and not for the first time unanimously, that Members should be admitted to representation on the Council of the College. We have always considered this reform desirable, and we have said so often, but not with any idea of preserving continuity of action with the distinguished founder of this paper, for he had abuses of a very different character to deal with. To-day the Council is not self-elected, nor are examinerships held by veterans who have fallen behind the learning of the time, so that methods of protest, allowed to have been legitimate in the bad old days, are no longer called for. But as to the rightness of admitting a representation of the large body of Members upon the governing body of the College, there seems to us no doubt; exclusion is an anachronism, having regard to the spirit of the times.

THE four successful candidates, together with the votes polled by each, for election as Direct Representatives for England and Wales on the General Medical Council are as follows:—(1) Dr. H. B. Brackenbury, London, 11,486; (2) Dr. R. A. Bolam, Newcastle-on-Tyne, 10,087; (3) Sir Thomas J. Verrall, Bath, 9620; (4) Dr. J. A. Macdonald, Taunton, 9143.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The seventh meeting of the Commission was held at the Home Office, Whitehall, on Nov. 20th, Lord Lawrence, of Kingsgate, in the chair. Mr. E. J. Strohmenger, Accountant-General of the Ministry of Health, was examined on a variety of matters relating to the financial and accounting arrangements of the scheme of National Health Insurance. Thereafter a beginning was made with the examination of the representatives of the Hearts of Oak Benefit Society, Mr. Hezekiah Dudley, chairman of the Executive Council, and Mr. J. P. Lewis, secretary, who dealt with various questions relating to the constitution, membership, and financial position of that society, and the extension of medical benefit to dependents of insured persons. The Commission announce that the oral evidence given at the meeting of Nov. 6th is now on sale in proof form (1s. 6*d.*) at H.M. Stationery Office, Adastral House, Kingsway, W.C.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCVIII.—THE TREATMENT OF CHRONIC BRONCHITIS AND EMPHYSEMA.

THE lot of the middle-aged or elderly bronchitic patient is a hard one and the task of his medical attendant is difficult, since the choice of treatment often lies between recommendations which are impracticable on the ground of expense, or uneconomic because they would prevent the patient from earning his living. Treatment is thus often of necessity a compromise and unsatisfactory from the patient's and, it may be, from the practitioner's points of view. Yet much can be done, even in unpromising cases, by a judicious use to the best advantage of preventive measures and palliative or remedial treatment. The association of bronchitis and emphysema is a true example of a vicious circle. The conditions of life and work in most parts of this country, especially in the towns, are often such as to fix the circle firmly in its harmful progression.

Prevention.

Climatic treatment.—Where possible, the patient should be moved from places where cold, damp, and fogs prevail to those with an equable, dry, and sunny climate, and where there are no prevailing cold winds. In this country, the health resorts on the south coast from Hastings to Falmouth or Penzance, including the Isle of Wight, and those on the Welsh coast—such as Colwyn Bay and Llandudno in the north or Tenby in the south—afford useful refuges for these patients; but even at such places they may be obliged to remain indoors for many days owing to unfavourable conditions of weather. Further afield, for those whose means permit, many of the resorts on the French and Italian Riviera, such as Hyéres, Cannes, Mentone, Nice, San Remo, and Alassio, are often recommended; but it should not be forgotten that at some of these places bitingly cold winds may occur, and that in crowded hotels catarrhal infections may be rife. Still further, the Egyptian desert stations, Mena House, Helouan, and Assouan, the Atlantic islands—Madeira, the Canaries, and the Azores, and places such as Jamaica, Cuba, and California all offer climatic conditions favourable to these patients during the months of the English winter. Patients endeavouring to escape catarrhal conditions in this country should leave before November and should not return till April at the earliest, and preferably May.

To many of the worst sufferers recommendations of this kind are impossible, from family, financial, and business reasons, and for such the conditions of life and work may require the most careful scrutiny. They may be advised to change their residence from a damp, foggy, low-lying or riverside locality to a healthy suburb or to another urban or rural district not too far away from the place of occupation. This is particularly the case where there is an asthmatic factor. It may sometimes be necessary for the patient to consider a change of occupation owing to the limitations imposed by the chronic and progressive nature of the malady. Dusty occupations are particularly to be avoided. In advanced cases where the patient is obliged to live in unsuitable places it may be necessary to keep him indoors for weeks at a time, or even for the greater part of the winter, only allowing a walk, drive, or other outing when the weather conditions are favourable.

Clothing.—Bronchitics nearly all have an almost morbid fear of "chill"—which is justified to the extent that it is generally admitted that marked chilling of the surface of the body may lead to congestion of the bronchial mucous membrane and to acute exacerbations of catarrhal processes. It becomes morbid when it leads the patient, as is so often the case, to put on extra vests, home-made or bought "chest protectors," or thick jackets of cotton-wool, medicated or otherwise. Once employed, these are difficult to discard, and, at each fresh sensation of cold, an extra layer is often applied till the patient is literally swathed in multiple wrappings. By promoting sweating, these measures render the patient uncomfortable and favour, rather than prevent, chill. Warm underwear of loose cellular type, either wool or linen, should be worn, with warm wool-lined waistcoats or cardigans in the case of men, and Shetland or other woollen spencers in the case of women. Sometimes two light cellular vests are to be preferred to one heavy impervious woollen garment. For outdoor wear, warm rather than heavy clothing should be worn. Scarves or "mufflers" are not to be encouraged, but they may be permitted, provided they are worn so as not to cause sweating.

Vaccines.—Prophylactic inoculations may afford valuable aid in the prevention of acute catarrhal infections. Where it is known that one particular organism is concerned, an autogenous vaccine may be used, but as a rule one of the stock "mixed" vaccines seems to give satisfactory results. The stock vaccine has the merit of being simpler and cheaper than an autogenous vaccine. Not a few patients, especially those with some chronic indurative process in the lungs, prove sensitive to these vaccines, and may develop acute symptoms after each dose. In such cases small doses should be used to start with in subsequent courses, and only slowly should the ordinary doses be reached. In some cases the prophylactic vaccination may have to be discarded.

Nose and throat.—The nose and throat should be carefully examined, and any abnormal condition, such as nasal obstruction, chronic diseases of the accessory sinuses or polypi, dealt with.

Diet.

Since not a few patients suffer from arteriosclerosis, heart weakness, or asthma, a light diet —poor in nitrogenous constituents—is advisable, and it is often wise to take the chief meal at midday rather than in the evening. Flatulence may promote useless cough, embarrass the heart, and increase the asthmatic or paroxysmal character of the dyspnœa. Alcohol should only be permitted in strict moderation. It is then more likely to be helpful in emergency. Smoking should be cut down or prohibited in severe cases, especially the inhaling of smoke.

Drugs.

The medicinal treatment varies with the type and degree of the condition. The classification of the cases which is usually adopted is based on that of Laennec. There is (1) the *ordinary winter cough or chronic tracheo-bronchitis*, the commonest variety. In such cases but little medicine may be necessary. A simple expectorant mixture of vin. ipecacuanhæ ♏ x., syrup. scillæ ʒ i., tinctur. camphoræ co. ♏ x., aquam chloroformi ad ℥ i., to take occasionally may be all that is necessary. Where cough is frequent, irritative, and ineffective, a dose of the well-known Brompton Hospital "mist. sodæ cum æther. chloric." taken in hot water may be helpful. It consists of sodium bicarbonate gr. x., sodium chloride gr. iii., spiritus chloroformi ♏ v., aquam anisi ad ℥ i. In cases with marked tracheitis, small doses of apomorphine (1/36–1/20 gr.) and of morphine in the form of tincturæ chloroformi et morphinæ, '85 B.P. (♏ v.–x.) are often very useful. Various demulcent or sedative lozenges, such as the black currant, the glycerine, the liquorice, the ipecacuanha, or ipecacuanha and morphine lozenge, or one with a small dose of heroin, are all of value in certain cases.

(2) *In more severe cases* with asthmatic dyspnœa or with copious nummulated muco-purulent sputum, iodides, ammonium salts (the chlorides or carbonates), and antispasmodic drugs, such as belladonna, stramonium, hyoscyamus or grindelia, may be useful.

A valuable mixture in such cases is pot. iodid. gr. iii., pot. bicarb. gr. x., ammon. carb. gr. iii., tinct. stramonii ♏ v.–x., syrup. tolut. ʒ i., aq. chlorof. ad ℥ i.

(3) *Bronchorrhœa*—the "pituitous catarrh" of older writers. This uncommon condition is a distressing one, owing to the very large quantity of sputum which is brought up. It may reach as much as 4 to 5 pints in 24 hours. It is thin, watery, frothy, and non-albuminous. Treatment seems to exert but little influence on it, but atropine, belladonna, acids, and vaccines may all be tried.

(4) *Dry catarrh*—in which little or no sputum is expectorated, but there is a chronic, distressing, and painful cough. In this type of case saline expectorants, such as the Brompton Hospital mixture above mentioned, with iodides give the best results.

Other drugs which have been employed in cases of chronic bronchitis are ammoniacum, terebene, creosote, garlic, the balsams, and the benzoates. Some of these are worth trial in cases which prove refractory. Cod-liver oil, with or without malt, is often helpful, especially in patients of thin, spare habit.

Local and Special Measures.

Counter irritation to the chest in the form of liniments often proves helpful and comforting to these patients, especially when there is retro-sternal soreness or muscular pain from violent or prolonged coughing. One of the best of these is the acetic turpentine liniment, but other stronger liniments or iodine ointments are often useful.

Dry cupping of the bases of the lungs may be useful during acute attacks, especially in older people, or those confined to bed and tending to develop hypostatic basic congestion. Poultices may also be used in similar conditions.

In cases with marked emphysema, various special contrivances have been designed to promote ventilation of the lungs—of these Kuhn's mask and the compressed air bath have proved the most helpful. The latter may help certain cases with dyspnœa and expectoration, but it is difficult to secure the treatment, and it is now not often used.

Vaccine treatment.—This seems to be of less value in treatment than in prophylaxis. It may, however, be tried cautiously in cases in which other methods fail. In this case an autogenous vaccine is to be preferred, in small doses at first.

Complications.

The chief complications for consideration are: (*a*) Attacks of acute bronchitis progressing to bronchopneumonia; (*b*) progressive emphysema; (*c*) cardiac failure; and (*d*) pulmonary tuberculosis.

(*a*) *Acute bronchitis* should be treated on ordinary lines. The patient should at once be put to bed, no matter how mild the attack may appear at the outset; saline expectorants, diaphoretics, and stimulants being given if necessary, and the physical signs watched.

(*b*) *Advancing emphysema* with increasing cyanosis demands a careful review of the patient's mode of life, occupation, and habits. In some such cases the compressed air bath proves of great value.

(*c*) *Cardiac failure*, which is more especially right-sided in these cases, requires most careful treatment. Rest, the relief of the engorged right side by venesection, leeching or purging, and the employment of cardiac tonics are the chief means at disposal. Venesection should not be employed in old, enfeebled, or cachectic cases.

(*d*) *Pulmonary tuberculosis.*—This should be suspected in cases in which the summer intermission suddenly ceases. It is wise in all cases to have the sputum examined, as it is now becoming more generally recognised that tuberculosis in the elderly often masquerades as senile bronchitis, or is masked by emphysema till it is advanced.

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Special Articles.

IS SANATORIUM TREATMENT JUSTIFIED BY ITS RESULTS?

A COMPARISON OF THE AFTER-HISTORIES OF 4000 LANCASHIRE SANATORIUM AND NON-SANATORIUM PATIENTS.

BY G. LISSANT COX, M.D. CAMB.,
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THERE have been in recent years many unfavourable opinions passed on the results of sanatorium treatment of patients suffering from pulmonary tuberculosis. Some of the more severe critics have openly stated their conviction that the money expended on this form of treatment is as good as wasted and could be better employed in other benefits to the patients by way of payment of weekly allowances or pensions, improved housing, and so on.

Fallacies of Comparative Figures.

It is unfortunate, I think, that in the past too hasty judgments have been formed on the results of sanatorium treatment based on data which gave no distinction between advanced and early cases, positive sputum and negative sputum cases, and young adults and old adults. To settle the superiority or otherwise of sanatorium treatment over other forms of treatment it would be necessary to compare one group of patients who have undergone sanatorium treatment with another group, exactly similar in age, sex, environment, location, and severity of the disease, who have received treatment other than in a sanatorium.[1] Such an experiment is not likely to be possible in this country, and any comparison we wish to make must, therefore, be based on less scientific data. The Medical Research Council have issued special reports (Nos. 33, 76, and 85) which give after-results of sanatorium treatment, but they have not yet attempted to make an investigation as to the relative merits of treatment at a sanatorium and at home. A comparison was made on a comparatively small scale by Dr. E. Ward, tuberculosis officer, Devon County Council,[2] with results unfavourable to sanatorium treatment, but the cases were not divided into age-groups, nor separated as to positive and negative sputum.

Method of this Inquiry.

For the administrative county of Lancaster, which contains a population of 1¾ millions, I have for the past three years (1921, 1922, 1923) published in my annual reports an analysis of the after-histories of a large number of patients that had undergone sanatorium treatment compared with the after-histories of patients similar, as far as possible, in age, sex, and severity of the disease that had *not* had sanatorium treatment. The patients taken for this investigation comprised all the adult cases of pulmonary tuberculosis, diagnosed as being in the early or intermediate stage of the disease, who applied to the county council for treatment during the years 1914–18, with certain necessary deductions for removals out of the county, untraceable cases, patients in whom the diagnosis subsequently was not confirmed, and those who died from causes other than tuberculosis. Patients that were in an advanced stage when first commencing treatment under the county scheme are not included in the analysis, as no useful purpose would be served thereby. Further, it is necessary to add that "sanatorium cases" mean patients that completed a stay of two months or more in a sanatorium, sent for probable arrest or cure of the disease (as distinct from a pulmonary hospital where treatment may have been given in the later stages of the disease), and that many of the "non-sanatorium cases" have also received treatment in a pulmonary hospital or observation hospital, or have had a stay of less than two months in a sanatorium, their treatment being interrupted for some reason or other.

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[1] THE LANCET, 1924, ii., 831.
[2] THE LANCET, 1921, i., 531.

After-histories of Sanatorium and Non-Sanatorium Cases.

The net numbers of cases which remained for investigation were 4067 in 1921, 3948 in 1922, and 3868 in 1923. Through the dispensary staff the position, as at the end of the years named, of each case was ascertained, and from this information the after-results were classified. Space permits the publication only of the last prepared table, that for 1923:—

Analysis of After-histories of (1) 2228 Patients who have Completed a Course of Sanatorium Treatment, Associated with Dispensary Treatment or Supervision; and (2) 1640 Patients who have Undergone Treatment at Home or in Institutions other than Sanatoriums.

Stage‡ of disease on application and sputum.†	Age-groups	Sex.	Position at end of 1923 of adult patients who applied during 1914–18 (five years).							
			Patients who completed two months or more *sanatorium* treatment.				Patients who received *home* treatment. (Non-sanatorium cases.)			
			Net* No. of patients treated.	Fit for work.	Unfit for work.	Died.	Net* No. of patients treated.	Fit for work.	Unfit for work.	Died.
				%	%	%		%	%	%
(*a*) I. and I.S. positive.	15–25	M	65	21·5	7·7	70·8	21	4·8	—	95·2
		F	47	10·6	8·5	80·8	12	8·3	—	91·7
	25–45	M	205	39·0	12·2	48·8	90	38·9	1·1	60·0
		F	112	34·8	4·5	60·7	40	35·0	2·5	62·5
	45–65	M	69	43·5	5·8	50·7	38	21·0	—	78·9
		F	10	10·0	40·0	50·0	7	42·8	—	57·1
	Total.	M	339	36·6	10·0	53·4	149	29·5	0·7	69·8
		F	169	26·6	7·7	65·7	59	30·5	1·7	67·8
Neg. or none.	15–25	M	92	85·9	1·1	13·0	59	66·1	5·1	28·8
		F	110	86·4	—	13·6	55	69·1	3·6	27·3
	25–45	M	182	85·7	4·9	9·3	110	73·6	—	26·4
		F	207	81·1	4·3	14·5	83	73·5	2·4	24·1
	45–65	M	69	75·4	4·3	20·3	55	65·4	5·4	29·1
		F	32	96·9	—	3·1	21	61·9	—	38·1
	Total.	M	343	83·7	3·8	12·5	224	69·6	2·7	27·7
		F	349	84·2	2·6	13·2	159	70·4	2·5	27·0
(*b*) II. and II.S. positive.	15–25	M	89	3·4	1·1	95·5	75	1·3	—	98·7
		F	89	8·9	6·7	84·3	90	—	—	100·0
	25–45	M	268	18·3	5·2	76·5	223	5·4	1·8	92·8
		F	177	15·8	7·3	76·8	155	9·7	2·6	87·7
	45–65	M	136	20·6	12·5	66·9	158	5·0	3·2	91·8
		F	34	35·3	17·6	47·0	31	16·1	—	83·9
	Total.	M	493	16·2	6·5	77·3	456	4·6	1·9	93·4
		F	300	16·0	8·3	75·7	276	7·2	1·4	91·3
Neg. or none.	15–25	M	28	71·4	10·7	17·8	27	25·9	—	74·1
		F	30	60·0	6·7	33·3	42	16·7	—	83·3
	25–45	M	56	57·1	7·1	35·7	79	34·2	1·3	64·5
		F	57	63·1	5·3	31·6	64	34·4	1·6	64·0
	45–65	M	46	65·2	6·5	28·3	89	31·5	1·1	67·4
		F	18	77·8	5·5	16·7	16	62·5	6·2	31·2
	Total.	M	130	63·1	7·7	29·2	195	31·8	1·0	67·2
		F	105	64·8	5·7	29·5	122	31·9	1·6	66·4

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* Net number arrived at after deducting patients left county, untraced, ceased treatment for other than medical reasons, died from other than tuberculosis, diagnosis not confirmed, and in institutions on Dec. 31st, 1923.

† Where sputum is shown as positive, tubercle bacilli have been found at some time during treatment.

‡ Classified according to the system of Turban-Gerhardt, and further subdivided into cases with slight and severe constitutional symptoms, as suggested by Philip.

Conclusions.

The conclusions which may be formed from this table and those for the two previous years may be summarised as follows:—

1. As the result of the analysis of the after-histories of adults suffering from pulmonary tuberculosis who commenced treatment under the Lancashire county scheme during the five years 1914–18, so far as comparison is possible, patients in the *early* and *intermediate* stages of the disease that have undergone a course of sanatorium treatment, even for three or four months, fare appreciably better in later years than those that have not received such treatment.

2. Differences in the mortality of the sanatorium and non-sanatorium patients are given below:—

—	Patients with negative or absent sputum.			Patients with positive sputum.		
	1921	1922	1923	1921	1922	1923
Percentage of sanatorium cases that had died at the end of the year stated	14·0	16·0	17·0	61·2	66·2	69·2
Percentage of non-sanatorium cases that had died at the end of the year stated	37·7	42·6	45·3	81·3	84·8	87·4

The difference in favour of sanatorium treatment is considerable for the negative or absent sputum cases, and nearly 20 per cent. for the positive sputum cases.

3. It would appear from the table that in the age-group 15–25 of the *positive* cases sanatorium treatment, merely regarded from the point of prolongation of life, is very little better than home treatment. It must never be forgotten, however, that from the more important side of prevention of the disease a stay in a sanatorium has, in the main, a definite educational result on the patient, his family, and his friends.

4. In both sanatorium and non-sanatorium cases early diagnosis is a very important factor in the successful treatment of pulmonary tuberculosis.

5. In both of the groups those patients with a negative or absent sputum throughout treatment are much more likely to remain fit for work, and less liable to succumb to the disease, than those with tubercle bacilli in the sputum.

6. Also, in both of the groups the mortality from pulmonary tuberculosis is greater among patients, aged between 15 and 25 years, with a positive sputum, than in the other age-groups.

Given reasonably early cases for treatment and an institution with a capable superintendent, the result of the investigation is in favour of sanatorium treatment.

UNIVERSITY OF BRISTOL.—Post-graduate demonstrations will be held at the Swindon Town Club on Wednesday, Dec. 3rd, at 3.15 P.M. The subject is Dyspepsia: Some Considerations for Diagnosis and Treatment, by Dr. Carey Coombs.

A WIRELESS EQUIPPED HOSPITAL.—The installation recently inaugurated at the Haywards Heath Hospital includes a four-valve wireless cabinet with head-phones connected with practically every bed in the wards, on the tidy-phone system. A movable loud speaker is included so that in the nurses' recreation-room concert and dance music can be enjoyed. The cost of the installation has been about £80. The inauguration ceremony was attended by a number of practitioners from Brighton and the surrounding district. Dr. Geoffrey Bate spoke to the patients by means of a microphone. He said they were in a hospital which was unique, because, as far as he knew, there was no other hospital in the country so completely equipped with wireless. The installation showed that they were doing everything to make the patient's stay in hospital cheerful and bright, which tended to hasten their recovery. Dr. Bate hoped it would encourage them to regain their health, but not encourage them to stay in hospital.

SURGICAL BOOTS.

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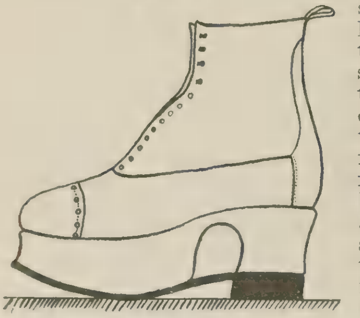
(*Concluded from p. 1085.*)

II.—GENERAL APPLICATIONS.

Shortening of the Leg.

WE will first consider simple shortening of leg without deformity of foot. If, for example, the shortening is 2½ inches, then the surgical boot should be raised inside with cork about 2 inches at the heel, 1 inch at tread, and ½ inch at toes. The tread is taken to be that part of the boot corresponding to the heads of the metatarsal bones. If shortening is more than 2½ inches, it is often more satisfactory to have the cork raising outside (Fig. 8), not inside (Fig. 9) the boot. The appearance of the boot is not so satisfactory, but the weight has been reduced, and the boot retains its shape and wears better. Shortening of the leg may be real or apparent.

FIG. 8.

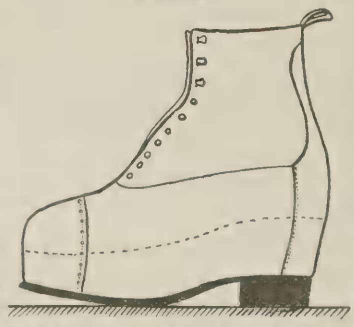


Surgical boot with outside "box" or "bridge" cork.

Methods of measurement for shortening are as follows:—

(*a*) *True shortening.*—In order to be accurate measurements should be taken with a metal tape from the anterior superior spine of the ilium to the tip of the internal malleolus, with the patient recumbent and properly stripped. This measurement should be taken at least twice on each side, and if no pelvic tilting is present, it can be checked with the patient standing, by means of graduated cork blocks of known thickness.

FIG. 9.



Surgical boot with inside cork. Note the "roll" or clearance at toe.

(*b*) *Apparent shortening.* — Where pelvic tilting is present, the above measurement may be vitiated. It is necessary under these circumstances to measure from a central point such as the umbilicus to the tip of the internal malleolus. Where pelvic tilting is a fixed deformity, such as occurs following injuries or disease in or about the hip-joint, this latter measurement must be the basis for any compensatory raising of the surgical boot. Owing to the adduction of one limb and the abduction of the other, it is essential in these cases that the apparently shortened limb should be compensated for. A purely functional tilting of the pelvis should never be compensated for, unless owing to lack of satisfactory treatment in its early stages a fixed deformity with scoliosis has finally resulted.

True shortening occurs most frequently after fracture of the femur, unreduced dislocation of the hip, osteo-arthritis, and certain diseases of the hip-joint; also in fractures of the leg below the knee. In children one of the commonest causes of shortening is anterior poliomyelitis.

In ordering a cork insole or so-called cork raising, provided there is useful range of movement in hip, knee, and ankle, one can order the full amount of raising up to 2 inches. Beyond this one can leave ½ inch or a little more for the patient's power of accommodation without risk of serious spinal deformity. Shortening of less than ½ inch may ordinarily be left alone. In all raised boots it is usual to graduate the cork insole from the heel forwards, allowing a drop of from ¾ inch or more between the heel and the tread, and in front of this the cork is fashioned so as to give a roll gradually decreasing in thickness up to the toes. This makes for ease in walking, and assists the toe of the boot to escape dragging on the ground.

In cases of shortening with stiff knee (ankylosis, or where there is range of flexion of less than 35°), in order to prevent the toe of the boot catching the ground in walking, it is necessary to give at least ½ to ¾ inch less raising than the actual shortening would otherwise require. A stiff knee with no shortening may actually require a raising of ½ inch on the sound side to permit satisfactory clearance in walking.

In hyper-extension of the knee (where knee can be flexed to more than 35°) it is wise to raise the heel about ½ inch more than the actual requirements of the shortening. This assists in preventing the knee from over-extending in walking.

The question of the graduation or gradual diminishing of the cork raising from heel to toe is subject to variation in special cases, depending on the integrity of the ankle-joint, and on the condition of the dorsiflexors of the foot. In cases of much shortening it may be found advantageous both as regards weight and appearance of the boot to make the graduation sharper than usual, so that a position approaching equinus may be obtained. It has to be remembered that the patient is going to wear the boot, and his preferences have to be always considered whenever they do not conflict with actual surgical necessity. "It is sometimes necessary to fit the patient's head as well as his foot."

Flat-foot.

In attempting to explain the surgical-boot requirements which this deformity necessitates, one is at first somewhat dismayed by the seeming complexity of the subject. The conditions are simplified, however, if we adopt the definition of Sir Robert Jones,[1] who states:—

> "Impairments of the longitudinal arch are associated with a train of symptoms which are found in the various degrees of weak foot, everted foot, and flat-foot. The term flat-foot may be taken as a generic name to include all degrees of strain of the longitudinal arch of the foot. To these varying conditions different names have been given."

It is well to keep clearly in mind that whether we are dealing with flat-foot or with other deformity of the foot, it is the last stage, the obvious osseous flat-foot (which no one could miss), which rarely requires any very definite surgical attention. It is essentially the early painful conditions of foot disability for which much can be done, and in these cases little or no deformity is to be seen. It is mainly by the situation of the pain and tenderness that we make our diagnosis. A normally high arch giving way may cause more discomfort than the most pronounced flat-foot.

The essential surgical alteration to boots, as pointed out by Thomas,[2] is the crooking of the heel on the inner side; this procedure has been previously explained. It was introduced by him originally for fractures about the ankle, to correct the splay-foot deformity which so frequently followed. Subsequently he used it for the flat-foot with necessary modifications, and it is possibly now the most universally known and adopted of all surgical alterations to boots. In the words of Thomas, its beneficial action arises not from bolstering up the arch of the foot, but by giving the foot an inward rotation. If all shoes or boots were made with a slightly crooked or oblique heel much foot trouble might be avoided. For young children especially such a modification of the ordinary shoe, combined with care and attention to the fitting round the heel, would be a decided advance towards prevention of flat-feet.

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[1] Jones, Sir Robert: Notes on Military Orthopædics. Cassell and Co., for the British Red Cross. 1918.

[2] Thomas, Owen: Contributions to Surgery and Medicine. London: H. K. Lewis. 1883–1890. Parts I.–VIII.

For prevention, restoration, or relief of variations from the normal symmetry of the inner longitudinal arch more can be done by specially modelling the heel and sole of the boot than by any other means. Money can be wasted on quack remedial measures, but the key of the situation is the crooked heel. In slight early cases of flat-foot the crooked and elongated heel may be sufficient. With varying degrees of severity the wedged sole patch on the inner side may be added, the turned-up insole faced with rubber, the special Thomas heel filling up the instep and "extending nearly but not quite to the ball of the big toe." A further modification is to prolong the normal stiffener of the heel upwards and inwards. In very severe cases of flat-foot in comparatively young and active persons, often due to trauma, it may be necessary to alter the heel of the boot to take an outside surgical iron with an inside T-strap, as well as to crook the heel.

In old people, and also when the deformity has become osseous, the surgeon's object is simply to fit the deformity, and to give comfort more than to attempt correction or cure. In the latter type of case the last on which the boots are made should be fitted up on the under side to correspond as nearly as possible to the shape of the sole of the foot. The heel should be rather low, well elongated and wedged with some inside stiffening. It must be carefully borne in mind that patients are not always going to find a marked surgical alteration to their boot immediately comfortable; they should be instructed not to attempt too much at first, and to persevere with what may seem at the outset to be an awkward addition to the boot.

Especially with women accustomed to high heels is it advisable to go to work very cautiously when lowering the heels or crooking them, and the alteration should be small at first, and gradually increased. Every case of flat-foot must be considered on its merits, and both the causative factor and the degree carefully investigated, otherwise the routine ordering of "crooked heels" may not always produce the desired effect.

Repairs.—The question of repairs to surgical boots is most important, and especially so with regard to boots for flat-feet. The whole desired effect of the boots may be negatived if repairs are not done early enough, or if they are not done by a surgical bootmaker who understands the requirements. A very pernicious practice is to put movable, round rubber heels on to a crooked heel; this completely destroys its efficiency.

Surgical bootmakers are by no means easy to convince, and Thomas states he had 24 years' wrangling with St. Crispin's fraternity. Explicit instructions must be given, and it is always wise to inspect the finished article to see that the instructions have been satisfactorily carried out.

Here the anterior arch of the foot is found to have flattened or even to have become convex on the plantar surface. Great relief is usually given by having a metatarsal bar added to the boot. Care must be taken to see that the bar is applied so that it comes behind the heads of the metatarsals and not under them. In many cases the metatarsal sock or pad referred to previously is very satisfactory, its action being to assist in restoring the anterior arch. As a preliminary to ordering this, it is useful to cut a small pad of felt ($\frac{1}{4}$ inch thick) to the required shape to fit behind the heads of the second, third, and fourth metatarsals, fix it in position by a piece of strapping round the foot, and let the patient wear this for a few days. In addition to the metatarsal bar it is usually advisable to crook the heel, making the inner side $\frac{1}{8}$ inch higher than the outer.

Metatarsalgia: Other Conditions Requiring Surgical Boots.

The following notes may help practitioners in ordering surgical boots suitable for the following conditions:—

Partial amputation of foot.—Surgical boot made to measurement of deformity; front of boot blocked with cork faced with sponge rubber; steel plate to be let into the sole of the boot to avoid buckling of the boot at the site of amputation.

Syme's amputation.—Special boot 3–4 inches higher than normal in the upper, to give support and to hide the deformity.

Pes cavus.—If not severe enough to require operative procedures, boots to fit the deformity, heels somewhat lower than normal, front of upper well raised to avoid prominent toes, and a metatarsal bar. Curative procedures by means of boots not very satisfactory.

Drop-foot.—Simple permanent drop-foot due to external popliteal nerve injury or infantile paralysis can be corrected to enable the foot to clear the ground. This can be accomplished by means of a jointed iron with box-socket fixed into the heel of the boot, and some form of drop-foot spring attached. The boot heel requires to be well built and strong to support the pressure. A T-shaped ankle-strap, as already described, is necessary, to be attached to the boot on the opposite side to the iron. Minor degrees of drop-foot may be assisted by a drop-foot tongue fixed to the front of the boot and buckled round the upper ankle: the boot should also be well stiffened to give support. In order to assist the patient in getting his foot in and out of the boot, it is advisable to have the boot laced low, either to the toe-cap, or no toe-cap ordered, and the boot laced to the toes. A boot with Derby front is most suitable for this type of case.

Hallux valgus and rigidus.—These deformities require boots of as soft a material as possible; a concealed metatarsal bar tapering to the outer side should be ordered, the heel should be crooked on the inner side as for flat-feet, with which these conditions are usually associated; and the inner border of the boot should be straight to allow the big toe to be drawn inwards towards the middle line of the body.

Hammer-toes.—Boots should be broad at toes and well raised in front to avoid any pressure on the prominent toes—metatarsal bar added.

Pott's fracture with eversion deformity of the foot, and fracture deformity of the foot itself with eversion.—In these cases it is advisable to strengthen the heel of the boot, add a round socket on the outer side and an inside T-strap, and to supply also an outside surgical iron fitting round the upper third of the leg. In addition, it is advisable to crook the heel of the boot on the inner side.

Painful conditions in the neighbourhood of the heel.—These may be temporarily relieved by placing a cork pad in the heel of the boot inside raised $\frac{1}{2}$ to $\frac{3}{4}$ inch and well padded with sponge rubber; this may take some of the pressure off the heel and relax the tendo Achillis, if its insertion should be the seat of bursitis, &c.

In extensive paralytic and congenital deformities it is often necessary, especially in female patients, to conceal the deformity wherever possible, and this may be done by attaching the steels, &c., which have to be worn to a leather support inside and not outside the boot. It is not maintained that the surgical alterations above listed exhaust by any means the possibilities in this respect; each deformed foot has to be treated as a separate entity, and much is left to the individual ingenuity of the surgeon and the surgical bootmaker.

Below is a typical order for a boot for, say, a case of old infantile paralysis of right leg with a short leg, and drop-foot with eversion and flat-foot.

Right boot, with cork insole raised 1 inch at heel, $\frac{1}{4}$ inch at tread, rolled to the toe, to lace to cap. Crooked and elongated heel, outside box-socket, inside T-strap, and fellow boot.

Outside iron for right leg, hinged ankle, and toe-raising spring.

In conclusion, we beg to thank the Ministry of Pensions for their kind permission to publish this article; also Mr. Bird, of Messrs. Beckett and Bird, New Cavendish-street, for his practical assistance in the preparation of the drawings.

PATENT MEDICINE ADVERTISING:

DOES IT NEED CLEANING UP, AND, IF SO, HOW CAN IT BE DONE?

AT a meeting of the Publicity Club, London, held at the Hotel Cecil on Nov. 17th, with Mr. WILLIAM YOUNG in the chair, a discussion was held on this question.

The Outsider's View.

Mr. GILBERT RUSSELL said that the Publicity Club wished not to attack patent medicine advertising, but to discuss the whole question. His remarks would represent his personal opinion, not an official statement of the club. Advertisements of patent medicines could be divided into two classes—the unobjectionable type making only reasonable claims which were justified by the drugs concerned, and the undesirable type which made exaggerated or even fraudulent claims. These could be found in plenty in any weekly religious paper. A typical example was the McQuorah vibrator which was advertised some years ago to cure most diseases. The proprietor had been hounded out of America, but was estimated to have made £60,000 in this country after an extensive advertising campaign. He then attempted to repeat the process in France, but was fined £120 and imprisoned for three years. Other examples could be found in the Report of the Select Committee of the House of Commons on Patent Medicine Advertising (1914). Their criticism of many medicines still being advertised was so drastic that Mr. Russell did not dare to repeat it. Again, a well-known antibilious remedy had been described by an Edinburgh judge as "a gigantic and too successful fraud."

The most disreputable class of patent medicine proprietor often traded under many aliases. The notorious Crippen, for instance, had been aural surgeon to the Droué Institute and was also known as M. Frankel. A most undesirable practice, which the Committee had recommended should be made illegal, was the advertisement of drugs as cures for diseases such as cancer, consumption, epilepsy, &c., which were known to be incurable by drugs. Mr. Russell quoted several advertisements of this class. Such advertisements were in no way exceptional and did much harm to the whole profession of advertising. Every lie harmed the honest advertiser, and owing to the exaggeration and frauds of patent medicine advertisers a growing section of the public was refusing to believe any advertisements at all.

The Select Committee's report had been a most devastating exposure of the subject, but had shown that there was at present no legal remedy. They had recommended that it should be made a breach of the law to give a false or misleading trade description of any remedy, and further, that patent medicine proprietors should be obliged to lodge with the Ministry of Health the formula of every remedy. It would thus become the duty of the Ministry of Health to watch patent medicine advertising and to prosecute when necessary.

Mr. Russell said that with regard to the deposition of their formulæ many manufacturers would probably object, but he did not see any real reason against it, since the Ministry of Health could be trusted as much as the Patent Office. Indeed, in many foreign countries the deposition or publication of the formulæ of proprietary medicines was already demanded by law. The above was a legal remedy, but it might be better still if advertisers would themselves produce a remedy. At present it was too difficult for an advertisement manager to refuse undesirable advertisements, but if a censorship board, composed of advertisers and manufacturers were formed to decide on a list of such advertisements as they considered objectionable, the difficulty would disappear, since managers could say they were not allowed to accept certain advertisements. Mr. Russell thought that such a board might succeed in spite of obvious difficulties. Some remedy was certainly needed, for while advertisements in general had undoubtedly been a social good, one exception must be admitted—namely, patent medicine advertisements.

The Medical View.

Dr. ALFRED COX (Medical Secretary, British Medical Association) said he would discuss the subject from three points of view—as a doctor, as a citizen, and as one who had to censor advertisements from the professional point of view. He considered the Select Committee's report on the subject the strongest House of Commons report he had ever seen, and was delighted with it. It should be remembered that the Committee was mainly composed of business men and newspaper proprietors. As a doctor he objected to patent medicine advertising because it was counter to the public interest. For instance, it involved long-distance diagnosis and treatment of disease by post. Every medical man would agree that this was impossible as disease was too complicated and variable. Again, owing to reliance on patent medicines patients sometimes postponed their application for proper treatment until too late, with disastrous results, as, for instance, in cancer or consumption. Dr. Cox then quoted from the Committee's report a number of most undesirable advertisements, including one well-known remedy whose proprietor had been arrested in America for fraud, and by pleading guilty of fraud had escaped with a fine. Another class of danger was illustrated by cough mixtures, which were advertised for all sorts of cough. Now some coughs were a symptom of irritation and needed soothing; others were a sign that secretion needed stimulation. It was impossible that one mixture should do both. A further evil was the constant stream of morbid suggestion in advertisements, which tended to make neurotic people regard drugs as a dope like alcohol which they could not do without.

Dr. Cox said he must emphasise the fact that doctors were not against patent medicines because they were injurious to the financial interests of doctors. On the contrary, doctors got much more out of patients who first tried patent medicines as cures than from patients who came straight to doctors. As a citizen he objected to the ridiculous claims of patent medicine advertisers and to their success, which was an indictment of the educational system of the country. Further, the fraudulent advertisers extracted most of their money from the poorest classes who could least afford it. As a censor of advertisements, he wished to point out how difficult it was to avoid being deceived. A frequent practice was to send papers respectable harmless advertisements of drugs which were sent out to purchasers with wrappers of the most exaggerated and fraudulent type. Any remarks he had made on the subject were very mild in comparison with some of the statements already published in the press. In support of this Dr. Cox read extracts from certain American newspapers which had decided to exclude all advertisements of patent medicines from their columns.

With regard to remedies, there were only two. First, the Select Committee's recommendations. These escaped publicity owing to their publication at the outbreak of the war. They had, however, been embodied in a Government Bill which had passed the House of Lords, but had later been withdrawn. Perhaps some Government would reintroduce such a Bill before long and would thus make the Ministry itself responsible for the question. The other remedy was for the advertising profession to clean up the matter itself. He would like to see this, and nothing would impress the public more favourably than such action.

The Manufacturer's View.

Mr. KENNINGHAM (Secretary to Association of British Proprietaries) said his Association stood for the more reputable class of proprietors, and was formed with the object of trying to clean up patent medicine advertising. Membership of the Association was confined to manufacturers who complied with certain regulations designed to exclude undesirable methods. He himself welcomed the Publicity Club's discussion, because if newspaper proprietors would see to the exclusion of the objectionable advertisements the matter would clean itself up without necessity for legal intervention. He did, however, object to Mr. Russell's remarks in that because of a few bad articles the whole trade was tarred with the same brush. Manufacturers, however, would not give their formulæ to a Government department. These formulæ were trade secrets, and fair play would not allow it. *Re* the Bill brought forward four years ago, Mr. Kenningham assured the meeting that this was not dropped owing to any request of the manufacturers themselves. The Bill would suit the manufacturers as well as the public. There was an enormous sale of patent medicines and there was no question that they did a great deal of good. Otherwise they would not sell as they did. Some patent medicines which had not been advertised for many years still had large sales simply because the public knew their value. All advertising men would agree that for an article to sell well it must be of good quality. In Great Britain about 100,000,000 packets of patent medicine were sold per annum, some two to three packets per person. In spite of all obstacles and criticisms, the sales of patent medicines continued to increase, largely because they supplied a real want on the part of the public. Doctors would freely generalise about the harm done by patent medicines, but he could not remember hearing any doctor quote a definite case of a patient who had been injured by them. He could not see why the reputable patent medicines should be classed in the same group with appliances and with the objectionable group. They were quite distinct, and it was not fair to class them together. His Association was perfectly willing to help to clean up the subject in any way possible, and they hoped the Bill would be passed. If any committee could be formed to exclude the disreputable advertisements from the newspapers the Association would be entirely in favour of it.

The Advertisement Manager's View.

Mr. **HORACE IMBER** said he was speaking from the advertisement directors' point of view. It was sometimes said that at least 30 per cent. of a doctor's cure was due to the personality of the doctor. In patent medicines this 30 per cent. was represented by the copy of the advertisement. As to the type of advertisements which should be accepted by a newspaper he had always made it a rule not to accept any advertisement of a disease which medical science could never cure—for instance, cancer and consumption. It had been his practice before accepting patent medicine advertisements to obtain a sample of the drug and have it analysed by a qualified chemist, but very few advertisements had been rejected as the result of such analyses. He considered the standard of advertising in this subject had been raised a great deal and in many cases was quite artistic. However, the other type of advertisement on which photographs of unpleasant people stared you in the face still sold the goods. Patent medicines, in his opinion, played a very important part in securing the health of the nation, because many people who were only slightly ill, and did not want to consult a doctor, would cure themselves by taking a patent medicine. A feature he did object to strongly was the inclusion of advertisements at the foot of the columns of reading matter at especially high rates. He would like nothing better than a committee which would help him in selecting reputable advertisements. His own medical knowledge was insufficient and he had to rely on the analyses of a qualified chemist.

An Advertiser's View.

Sir **WILLIAM VENO** said that if Mr. Kenningham's figure of 100 million packages was correct he manufactured 10 per cent. of it, and the sale was growing rapidly. While it was unpleasant to listen to some of Mr. Russell's drastic statements he entirely agreed with Dr. Cox's most reasonable remarks. He considered that manufacturers would lose nothing by exposing their formulæ if they were protected for them. Under such conditions he would willingly publish his own formulæ. He was very sorry that the Bill introduced four years ago had not become law. The manufacturers had studied it clause by clause and found nothing objectionable. They all agreed to it. He invited Dr. Cox to inspect his laboratories at Manchester, and would be delighted to show him everything. The alleged formula of Veno's cough cure had appeared in "Secret Remedies," but he had smiled when he saw it. It really contained six rather important ingredients. Three of these were grindelia, yerba santa, and balsam of tolu. In future advertisements these three ingredients would be mentioned, and if Dr. Cox knew of any more useful ingredient than these three he would be glad to put it in his cure. A good deal was said about the percentage of water in medicines, but in what else could the drugs be dissolved? If water was not used the medicines would be dangerously strong. The patent medicine business laid itself open to criticism because men with fraudulent intentions were attracted to it, but it was not fair to class all patent medicines together. There were two quite separate classes. The reputable medicines, such as Veno's cough cure (which could be bought for 1*s.* 3*d.*), were the poor man's medicine, and as such were really valuable. But the other class, the fraudulent medicines, should be cleared out of business altogether. One method of achieving this end would be to bring in legislation to set up a committee of doctors and chemists with power to visit laboratories. Legitimate businesses could then be registered and others stopped.

General Discussion.

Mr. **THOMSON WALKER** said Mr. Kenningham had referred mainly to reputable patent medicines, but we were not here to discuss the reputable ones. The objection to disclosing formulæ could not be so great as Mr. Kenningham had said, as was shown by Sir William Veno's readiness to disclose his formula to Dr. Cox, and by some advertisements. It was, however, an absolute necessity if the matter was to be cleaned up, and the patent medicine trade had brought the necessity on itself. Not merely bad patent medicines, but good medicines badly advertised must be considered. With regard to the precautions taken by some newspapers in excluding harmful advertisements these were necessarily inadequate. For instance, the guarantees of sending money back if readers were not satisfied, or the guarantee that remedies were not injurious were quite worthless. Some more drastic remedy was needed such as that proposed by Sir William Veno or by the Parliamentary Committee.

Mr. **STUART HIRST** (representing C. E. Fulford and Co.) said that the question of acceptance and rejection of advertisements was a very technical one. A recent widely accepted advertisement had shown how easily advertisement managers were deceived if sufficient skill was used in writing the "copy." In order to decide the question newspaper proprietors must have technical advice at their disposal. With reference to a previous speaker's criticisms of a certain advertisement, the formula published in "Secret Remedies" was incorrect, and the advertisement in question was correct in every respect. The case put by Mr. Russell only represented one side of a very complicated business. No campaign of calumny or misrepresentation would help, but only impartial study of this complicated subject.

Mr. **VALKENBERG** said that patent medicine advertisements did need cleaning up for the benefit of all other advertisers. The juxtaposition of advertisements of bad legs to costly advertisements of perfumery or similar goods was repellent and certainly harmful to the latter.

Mr. **B. W. ROWE** said that the fraudulent nature of many patent medicine advertisements discounted the public belief in other reputable advertisements, and so wasted millions of pounds annually in addition to that spent on the medicines themselves. He did not believe that an article in order to succeed must be a good article. In patent medicine advertising it would always be possible to fool the public and to make people believe they had been cured. In this subject the British love of freedom had gone too far, and the uneducated public must be protected from the fraudulent advertiser.

Mr. D. Mugford advocated the use of the term proprietary medicine instead of patent medicine, and quoted an advertisement of a well-known headache powder as misleading owing to the numerous possible causes of headache such as eyestrain. In the face of this and similar statements, there was real need for the publication of formulæ. The Bill relating to patent medicines was prepared as a direct result of the Select Committee's report, and in spite of his opposition to Governmental control in advertising he felt the Bill was a real necessity.

Mr. Kenningham said that a formula was the only protection for a trade-mark, and if once disclosed might lead to the loss of the trade-mark throughout the world. The position of a patent was quite different.

Reply and Resolution.

Mr. Russell replied to various criticisms and said that the meeting was not a campaign by the Publicity Club, but an impartial discussion by both sides.

Mr. Fleetwood Pritchard moved the following resolution :—

> That this meeting of the Publicity Club of London, held at the Hotel Cecil on Nov. 17th, 1924, representing the largest advertisement club in Great Britain, records its opinion that the present condition of the law in regard to patent medicine advertising calls for immediate reform, and urges the immediate introduction of legislation along the lines laid down by the Select Committee of the House of Commons in 1914.

The resolution was seconded by Mr. Rowe and carried unanimously.

SCHOOL MEDICAL SERVICE.

Aberdeen.

Dr. G. Rose, in presenting his fifteenth annual report, remarks that if the popularity of medical inspection is to be judged by the number of parents putting in an appearance at inspections, it is increasing in Aberdeen every year. Last year 70 per cent. of the parents were present, surely a record in any area. The Aberdeen school report nearly always presents us with a new point of view, and we deal with Dr. Rose's important investigation into the effect of rickets in infancy on the growth of the adolescent boy and girl in another part of this issue (see p. 1140). A policy of thoroughness is to be observed throughout the public health administration of the city. If one child of a family is found verminous, and the whole family is not cleaned within a certain time (and in this they get practical help in the way of instructions and disinfectants from the medical department), off they all go to the cleansing station, which they willingly do rather than face the publicity of a prosecution. The house then is thoroughly cleaned and disinfected ; fresh chaff is supplied for the beds, and where necessary the bed and body linen are washed as well as disinfected. The family thus get a fresh start in life, and seldom get into a like condition again. The scheme, which is unique, has worked smoothly since 1911, when it was inaugurated with considerable misgivings as to its success, which was assured largely by the tact of those dealing with the families concerned, and by the excellent provision for their comfort during the cleansing process. At the beginning the prosecution of a few cases of gross neglect and verminous conditions was necessary, but these have gradually become less frequent. Last year 99 families suffering from body vermin came under notice for the first time along with 54 families who had been under notice previously ; 66 of these families, including 174 adults, 100 schoolchildren, and 53 infants were treated at the cleansing station. The home accommodation amongst them was as follows : 24 had one room, 106 had two rooms, 47 had three rooms, 15 had four and five rooms. The figures speak for themselves. Casual and dock labourers contributed the largest number. The rearrangement of the clinical work, which has been made possible by provision of extra accommodation, has resulted in treatment being more expeditious and working conditions more comfortable. The clinics are central and therefore convenient for doctor and patient. The dental work, which is in the hands of one whole-time and one half-time dentist, assisted by a dental dresser who does temporary fillings and dressings, continues to increase in popularity. School hygiene as a whole will gain from this informative report.

Lindsey.

Lindsey has a school roll of over 39,000 children, of whom 12,345 were examined in the routine groups. Of these, over 15 per cent. required treatment, and approximately 20 per cent. needed further supervision. Including dental disease, which never fails to increase the numbers considerably, only 13·69 per cent. of the total number examined had no defect. Dr. R. Ashleigh Glegg prints seven separate rules for the preservation of children's sight, and it is to be hoped that they will circulate among the schools, for, as he points out, the chief cause of aggravation of defective sight is the failure of teachers to recognise the first principles of ocular hygiene. There is no doubt that if reading from books in school were definitely prohibited before 7 years of age, as would not be difficult now that an interest in hygiene generally has been stimulated among school teachers by school inspection, a diminution in the amount of visual defect would result. There are now 15 centres for the treatment of minor ailments. As a rule a doctor and a nurse attend once a week, but in a few of the smaller centres attendance is fortnightly, although in one district a nurse attends daily to carry out routine treatment. Operative treatment for enlarged tonsils and adenoids is given at certain hospitals and at the school clinic in Barton-on-Humber. Yet there still remained at the end of the year 1112 cases for which no treatment had been obtained. The head teacher's first annual report on the new Branston Hall Sanatorium is interesting enough to make one look forward to the second.

Nottinghamshire.

Dr. H. Handford has unfortunately had to retire on account of increasing ill-health, and Dr. T. E. Holmes acknowledges his indebtedness to the senior assistant medical officer, Dr. A. C. Tibbits, for writing the report. Although no new schemes have been inaugurated during the year, much solid groundwork has been accomplished. In spite of this the school dentist reports that the dentists were unable to complete the circuit of schools in the 12 months, and it is proposed to omit the reinspection of children who have twice refused treatment. The large number of refusals to accept dental treatment (60 to 70 per cent.) is an indication of the parent's own attitude, which is one of distrust and alarm, engendered probably by a mental association of dentists and painful extractions of badly decayed molars. A wholesale educational campaign on modified American lines, by means of attractive leaflets and lectures, is badly wanted in this particular direction ; so much depends on health efficiency, and so much of health efficiency depends on the state of the teeth. More and more the medical profession is realising that a healthy body only goes with a clean mouth. During the year 13,538 children were dealt with, 2628 of these being special cases. It is interesting to know that in Nottinghamshire the body-louse is " fast becoming extinct " ; this costly animal certainly ought to be disappearing ; in this county alone nine highly qualified school nurses made 131,466 examinations of children to ascertain their state of cleanliness. In the few districts where school clinics are available parents appear anxious to avail themselves of them, but many more are wanted. Railway journeys are difficult and expensive. A special plea is made for organised classes for dull and backward children, so many of whom profit by careful individual instruction impossible in the ordinary class; while a desirable addition to the staff would be an expert instructor in physical exercises. A teacher adequately trained in this direction ought to be found in every county to help and advise in the matter of graded physical training and of games, now playing such an important part in education. Twelve schools were closed on account of small-pox, and this epidemic, although fortunately a mild one, meant a considerable amount of extra work in the public health department.

Dover.

The school medical officer, Dr. A. B. McMaster, who is also medical officer of health, reports that over 2000 children were examined in 1923 in the routine age-group, and 14 per cent. of these were found to require treatment. Apart from dental defects, defective vision accounted for the greatest number. The incidence of defective vision was 7·6 per cent., which is low compared with other counties such as Kent and London. Fully a quarter of the special cases were presented on account of skin trouble of some description, mostly impetigo. Ringworm has diminished in the schools; there were 54 fewer cases this year than last, and 186 less than the year before. These children are treated by means of X rays. Altogether 752 children obtained treatment during the year, all under the authority's scheme, with the exception of 20.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. A. W. McRorie to be Surg. Lt.-Comdr.

R. G. Anthony to be Surg. Lt. for short service.

ROYAL ARMY MEDICAL CORPS COMMISSIONS.

An examination for not less than 20 commissions in the Royal Army Medical Corps will be held on Jan. 28th, 1925. Applications should be made to the Under-Secretary of State, the War Office, not later than Jan. 18th. Full particulars of the duties and emoluments of the service can be obtained on written application to the Under Secretary of State (A.M.D.1.), the War Office, Whitehall, London, S.W.

ROYAL ARMY MEDICAL CORPS.

Lt.-Cols. H. M. Morton (granted the rank of Col.) and A. D. Waring retire on ret. pay.

The undermentioned Majs. to be Lt.-Cols.: G. A. K. H. Reed, vice Lt.-Col. H. M. Morton; and Bt. Lt.-Col. J. M. H. Conway, vice Lt.-Col. A. D. Waring.

Capt. W. E. K. Coles relinquishes the temp. rank of Maj. on ceasing to be empld as a Dep. Asst. Dir. of Pathology.

REGULAR ARMY RESERVE OF OFFICERS.

Capt. W. S. Dawson, late R.A.M.C., Spec. Res., to be Lt.

Lt. C. C. H. Chavasse, from R.A.M.C., Reg. Army Res. of Off., to be Lt.

MILITIA.

Capt. A. D. d'Avray to be Maj.

TERRITORIAL ARMY.

Cadet D. Jack (Edinburgh University O.T.C.) be to Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Col. H. T. Challis having attained the age limit is ret. and retains the rank of Col. with permission to wear the prescribed uniform.

Lt.-Cols. T. Forrest, T. A. Green, and H. A. Rudyard having attained the age limit are ret. and retain the rank of Lt.-Col. with permission to wear the prescribed uniform.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of Lt.-Col. F. H. G. Hutchinson to Col., and the retirement of Lt.-Col. G. A. Jolly. His Majesty has also approved the grant of a temporary commission to S. Mahmood Ali Khan.

Correspondence.

"Audi alteram partem."

LABORATORY CHANGES AT A HOSPITAL.

To the Editor of THE LANCET.

SIR,—I wish to support the protest, made in THE LANCET last week by Dr. Greenfield and others in their letter under this heading, against the proposed scheme for laboratory diagnosis advertised by the Hospital for Epilepsy and Paralysis, Maida Vale. It does not seem desirable that an institution depending on voluntary contributions from the public should compete at cut rates with the regular institutions carrying out clinical diagnosis commercially, and working pathologists would seem to have a real grievance here. The facts as to personnel being as stated, there are grave objections to the scheme. At the present time, when any unqualified person can claim to be an authority on medical subjects, it may seem hypercritical to object to pathological diagnosis being undertaken by those who have not gone through a probationary mill, and, as a matter of fact, no sensible person would object if this were a private commercial venture. The feature of the scheme to which exception must be taken is, that a medical institution should allow its reputation to be accepted as a guarantee that those who are to carry out the work are competent and qualified to a degree which justifies them in asking for the very moderate fees mentioned in the circular.

I am, Sir, yours faithfully,

J. A. MURRAY,
President, Pathological Section, Royal Society of Medicine.

London, Nov. 24th, 1924.

THE ALLEGED STERILITY OF PRESENT-DAY BACTERIOLOGY.

To the Editor of THE LANCET.

SIR,—The interesting letter of Prof. J. C. G. Ledingham on this subject in your issue of Nov. 22nd has probably raised some doubt in the minds of many thoughtful clinicians. Few will deny the soundness of Prof. Ledingham's contention that our knowledge of the ætiology of certain diseases such as syphilis, epidemic jaundice, and yellow fever has been greatly advanced in the last quarter of a century through the investigations of bacteriologists. It may also be fairly claimed that in regard to general medicine, in which the vast majority of practitioners are mainly interested, the period has been relatively sterile so far as results of value to practical medicine is concerned. I think, however, that in apportioning any blame for this state of affairs, it is hardly fair to blame the bacteriologists entirely. This should be divided at least equally between clinicians and bacteriologists. On the bacteriological side the period in question has not been entirely unproductive. It has produced a wealth of bacteriological technique and specialised knowledge regarding the life of bacteria, under the extremely limited conditions which come under the sphere of action and thought of the medical bacteriologist. It has further produced a wealth of classification which has done credit to the industry of bacteriologists, but a great deal more than this is required, and there is good reason for thinking that a change of outlook and practice is urgently called for if any real advance in the practical application of bacteriology to everyday medicine is to be made.

I can best illustrate my view by a reference to two points which have recently interested me as a clinician, with a keen interest in and an elementary knowledge of bacteriology.

1. In the last year or two, in connexion with certain practical problems of milk production and milk preservation, I have had occasion to make some simple bacteriological observations on milk, and, on seeking help from competent bacteriologists, I have been much impressed by their admitted lack of knowledge

and sometimes their apparent lack of interest in a question of such first-rate importance in general nutrition and medicine. The unfavourable results of excessive specialisation in the subject have been strikingly revealed.

2. I recently had occasion to make a simple bacteriological investigation of certain soils in order to test a theory that there may be close analogy between certain processes of nitrification and denitrification in the soil, and similar processes daily occurring in the human interior. In the course of these observations I obtained a bacterial culture from the soil, of an apparently pure organism, and experimented with it in the garden with results of an interesting and arresting kind. The organism in question had the typical morphological appearances and biochemical reactions of *Bacillus coli*. Here, again, a reference to several competent bacteriologists, both on the agricultural and medical side, failed to yield any helpful suggestions or criticism. The subject was obviously outwith their line of vision and their interest.

My experience has led me to the conclusion that while the training and outlook of bacteriologists and bacteriology teachers reflect the greatest credit on their work, from the limited point of view in which the subject is approached, a much wider outlook is essential if bacteriology is to advance our knowledge of general medicine in the next few decades. Medical bacteriology, like general medicine itself, is really a branch of biology, and until there is established an infinitely wider outlook and practice based on that wider outlook, the valuable secrets which could, in my view, beyond question be revealed by the skilled application of expert bacteriological knowledge to medicine, will remain secrets. For that reason one welcomes and endorses the statement in your leading article on this subject in the issue of Sept. 20th: "What there is most needed at the present time by all those who are engaged on the technological applications of bacteriology is the provision of facilities for teaching and research into how bacteria, irrespective of their human importance, live and move and have their being."

I am convinced that when the importance of this is realised and judiciously followed up by appropriate action, a step of vast importance to clinical medicine will have been taken; and, 10 or 20 years hence, there would be no justification for any letter appearing in your columns under the heading of "The Alleged Sterility of Present-day Bacteriology."

I am, Sir, yours faithfully,
CHALMERS WATSON, M.D.

Edinburgh, Nov. 24th, 1924.

To the Editor of THE LANCET.

SIR,—Prof. J. C. G. Ledingham has dealt with some asperity with certain observations on bacteriology that appeared in your issue of Nov. 15th; I would like to add a comment in somewhat lighter vein on the epithets that were applied to clinical pathology. Since reading your leading article and Prof. Boycott's address I have been greatly worried by the problem of my origin, and I would ask your help in deciding whether. assuming clinical pathology to be the mulish hybrid you suggest, it is by medicine out of pathology, or by pathology out of medicine; or, more bluntly, which of its parents is the ass? In asking this ticklish question I would not have it thought that I object to the epithets applied; on the contrary, I think them in many ways very apt. Your readers need no reminder that there is more than one story in the Scriptures that redounds to the credit of the ass, and mules at least give us a shining example of "the good life" which, as Prof. Boycott reminds us, is fulfilled by bearing other peoples' burdens. Throughout the long years since I was first Prof. Boycott's demonstrator I have owed him much more than he would permit me to tell; I wish I could feel worthy of this crowning gift, the halo of a saint. I am, Sir, yours faithfully,
G. W. GOODHART.

Warwick-gardens, Kensington, W., Nov. 24th, 1924.

PUERPERAL MORTALITY.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 15th, reporting the discussion at the Royal Society of Medicine on Puerperal Sepsis, Dr. R. A. Lyster is quoted as saying that the almost sole cause of maternal mortality was bad midwifery practice, the level of which could be raised by efficient supervision and inspection. Dr. Lyster does not, however, suggest how he would supervise and inspect the midwifery of the medical practitioner, but confines himself to adverse criticism of midwives' midwifery, making the startling statement that, by influence through their societies, midwives have prevented their work being properly checked and supervised, with the result that the working of the Midwives Act has resulted in little or no improvement in maternal or infant mortality.

As the Midwives' Institute is (with one possible exception) the only midwives' society to which he can allude, we should be interested to know how we were able to exert such influence as to nullify both the Midwives Act and the Notification of Births Act, and to obtain the support of the Central Midwives Board in these reprehensible practices. The Midwives Act gives very considerable powers to the local supervising authorities of the county or county borough. Dr. Lyster is the executive officer for his local supervising authority, and we ask him why his inspectors do not properly check and supervise the midwives of the county of Hampshire. Perhaps the midwives' societies have been active there also?

In regard to his "striking fact that the death-rate of infants during the first few days is comparatively high, and does not tend to diminish," we would remind Dr. Lyster of what we feel sure he must often have heard—viz., that the causes of the high neonatal mortality are chiefly pre-maturity, birth injuries, and maternal intoxication. We fail to see what effect on this mortality "the official visit to the house" of a health visitor would have. Dr. Lyster's faith in the health visitor from the town-hall, and his dread of the midwife who bears the burden and heat of the day is pathetic. We midwives have for long studied this question of the prevention of maternal mortality very earnestly. We feel that the solution has not yet been found, and doubtless depends on more than one factor. In the practice of well-trained midwives, supervised and inspected by efficient inspectors who are at the same time friends and advisers, and with competent medical consultants in difficulties, the mortality where midwives are engaged to attend has almost reached an irreducible minimum. (In 1923 the mortality in 54,554 cases attended by the nurse-midwives of the Q.V.J.I.N. was 1·4 per 1000, including every case in which medical aid was summoned.)

The Midwives' Institute feels greatly the importance of prevention; towards this the first step should be to find out the cause of every death in childbirth. This will not be achieved until there is in every case a post-mortem examination made by an independent medical official.

We consider, therefore, that the first steps in this matter should be: (1) A post-mortem examination on all deaths in childbirth. (2) A space on the notification of births card for the name and description of the person actually delivering the woman. (3) It should be made a penal offence for anyone not a doctor or a certified midwife to examine (p.v.) a pregnant or parturient woman. (4) That in every area there should be an obstetric consultant whom midwives could consult antenatally, at labour, and postnatally. (5) That in every area there should be beds where a midwife could send a bad emergency case, and a service of motor ambulances. (6) That certain elementary matters concerning the hygiene of marriage and motherhood should be taught to young men and women before marriage.—I am, Sir, yours faithfully,
E. SIMPSON,
Secretary, Midwives' Institute.

12, Buckingham-street, Strand, W.C., Nov. 20th, 1924.

INTRA-OCULAR TENSION IN MYOPIA.

To the Editor of THE LANCET.

SIR,—Dr. Edridge-Green, writing on the above subject in your issue of Oct. 25th, states his belief that myopia is produced by dilatation of the eye through increased intra-ocular tension caused by back pressure through the veins of the eye, as the direct result of strain. The ordinary explanations of the occurrence of myopia—viz., that vigorous muscular action in the act of convergence, and pressure of the extra-ocular muscles, notably the internal rectus and superior oblique, exercising undue pressure on the eyeball, thereby cause a lengthening of its antero-posterior axis—are allowed to be very unsatisfactory. The shape of the eye depends chiefly on its firm resistant outer coat, which is formed by the strong opaque sclera, supported in the posterior two-thirds of the eye-ball by the capsule of Tenon, with the cornea in front. The cornea and the front part of the sclerotic are supported by the lens with ts capsule and ligament. In health, the fundus and the sides of the eyeball are well braced up by the extra-ocular muscles as a whole, and the fundus is supported by the fat and areolar tissue which lies between it and the orbit. Myopia is essentially associated with debilitated states of the individual and s a disease of modern civilisation. The condition is seldom congenital, but tends to develop between the ages of from 4 to 16 years, most commonly about the period of adolescence. During wasting illnesses it is apt to increase and it may diminish as health and vigour return. In other words, it is associated with a marked endency to debility rather than to continuous and excessive muscular action.

Normally, the sclerotic coat is thinner in the young child than in the adult; and in rickets, and other debilitating diseases, notably after measles and whooping-cough, it tends to be softened and is still more attenuated as a result of malnutrition. Rickets plays a formidable part in the production of these debilitated states, and, like scoliosis, flat-foot, and knock-knee, myopia may arise as the sequel of the persistence of a debilitated muscular state long after he active disease has subsided. In other words, diminished resistance of supporting structures rather han increased strain is, I believe, the essential actor in the production of myopia.

I am, Sir, yours faithfully,

J. LAWSON DICK.

Cholmeley Park, Highgate, Nov. 23rd, 1924.

THE THERAPEUTIC VALUE OF MUSIC.

To the Editor of THE LANCET.

SIR,—During a vast personal experience of music nd musicians, contentment among listeners has, think, been the dominant outcome of any well-rdered musical effort. Excitement, never immoderate, s common enough and mostly pleasurable, and once n a way overwhelming sadness; but music has lways seemed to me less objective in itself than suffusing influence pervading receptive ground, wakening latent mentality, invaluable in cerebral atigue or torpor, often soothing, more sedative, nd, in my own person, an unfailing incentive to ntellectual effort in cloudy moments.

We may certainly associate soft music with the ulling or obliteration of pain for a while, and there is, erhaps, an association of harmony in sound with the roduction of hypnotic anæsthesia by other means, hough what refinements of molecular change underlie n the sensorium the abeyance of mental activity e know not. There is, moreover, a close resemblance n physiological action between music and other timuli which regulate the vaso-motor activity oncerned in tissue change and glandular function, ut we cannot measure the administration of music n terms of drug value or dosage.

Further than this I am not prepared to go, and I have little hope that music as a therapeutic agent will respond to the extravagant expectations now in vogue. The best effects are far too transient to be of substantial value even in functional derangement, and we surely need not expect success in the presence of organic lesion. The malady of Saul baffled David, but the cerebral apathy of Elisha yielded to the effective harmony of the Minstrel. There are, besides, certain mental extremities in which, as with Darius the King, music is simply intolerable. Truly, Music was the earliest and most spontaneous of the Arts, and if regarded as a language she speaks in a perfect babel of dialects to suit her listeners.

In early days I was bassoon in a quartet composed of oboe, cor anglais, tenoroon and fagotto, and we were the accepted exponents both in theory and practice of orchestral double-reed instruments. We played the organ fugues of Bach and Handel with other sane music. M. Costa listened to us with sparkling approval; Grove came for information for his Dictionary, and Haweis to talk. We played everywhere, not infrequently in some of the lunatic asylums, at Earlswood especially, with the control of epilepsy in view. But no good came of this and we seemed among the epileptics to be confronted with a depressing and impenetrable vacancy. We never adopted the fanciful interpretation suggested by emotional listeners, but gladly accepted the *deductio ad absurdum* of the American who claimed our sympathy in an attack of hay fever contracted during a recital of the Pastoral symphony with its cuckoos, quails, and other vernal influences. In my pre-Troyte days I took many a bell in steeple change-ringing and used to compare the melodious intricacy of Stedman's doubles with some of Bach's best work. But music as a separate entity never diverted us from the graver avocations of medicine and science, nor have I followed the descent of harmony to the ministration of fox-trot and bunny-hug displays. Sir Walford Davies would hardly be concerned to explore the language of music in such association. The ladies of the Prophet Ezekiel would be more worthy exponents. I am, Sir, yours faithfully,

MICHAEL GRABHAM, M.D., LL.D., F.R.C.P.

Madeira, Nov. 19th, 1924.

METASTATIC GAS GANGRENE.

To the Editor of THE LANCET.

SIR,—All surgeons engaged in gastro-intestinal surgery will sympathise with Mr. B. T. Rose in the loss of a patient from this very rare complication after gastro-enterostomy (see THE LANCET, Oct. 4th, p. 726). But, in addition to the interesting problem as to the origin of this virulent infection, there is, I think, in this case a point of technique possibly of some importance. The posterior operation, generally so easy, was performed, Mr. Rose reports, "with some difficulty as the omenta were very fatty and the stomach small and high up."

I venture to suggest that under such circumstances the anterior operation would have been preferable. Curiously enough I have just operated on a patient whose lesions resembled those recorded in this case. A very fat man, aged 30, had a grossly diseased appendix and a well-marked duodenal ulcer in a stomach without any dilatation. After appendicectomy, on turning up the colon loaded with fat, I found the mesocolon consisted of a sheet of thick fat in which one small vein was faintly visible. Without hesitation I performed the anterior operation and entero-anastomosis.

My experience leads me to perform it in three different conditions of the mesocolon: (1) If it be excessively fat; or (2) abnormally vascular, so that an adequate opening cannot be made without troublesome bleeding; or (3) so short that the colon would be anchored too near the anastomosis. If fat be present to a considerable but not excessive extent in a sufficiently lax mesocolon, W. J. Mayo's well-known method of dealing with it should be employed; the edges of the mesocolic opening should not be sutured to the jejunum, but away from the suture line well up on the stomach cone.

The immediate and remote results of the anterior operation have been excellent, as satisfactory as the posterior, with perhaps the disadvantage of a slightly higher liability to subsequent ulceration of the anastomosis. But if this troublesome complication occurs, the secondary gastrectomy required for its relief is, of course, much easier than when the short loop posterior operation has been performed. The value of the anterior operation in selected cases has been insisted on by several surgeons, and quite recently again by Balfour,[1] who writes of it: "Anterior gastro-enterostomy, particularly when combined with entero-anastomosis, is a more useful substitute for posterior gastro-enterostomy than is generally believed."—I am, Sir, yours faithfully,

Huelva, Spain, Nov. 10th, 1924. IAN MACDONALD.

BACTERIOLOGY AS A DEGREE SUBJECT.

To the Editor of THE LANCET.

SIR,—In his address on the Progress of Pathology Prof. A. E. Boycott seems to imply that Cambridge, Manchester, and Leeds are making new departures by admitting pathology and bacteriology as subjects for science degrees (your issue of Nov. 15th, p. 999). May I remind Dr. Boycott that the University of London, in which he is a professor, for years has allowed bacteriology as a subject for the B.Sc. degree, and that pathological and bacteriological subjects may be presented for the M.Sc. and Ph.D. degrees since these were instituted.

I am, Sir, yours faithfully,
R. TANNER HEWLETT.

University of London, King's College, Nov. 24th, 1924.

MEDICAL SUBSCRIPTIONS AND INCOME-TAX RETURNS.

To the Editor of THE LANCET.

SIR,—At the last meeting of the Council of the Medical Defence Union a letter was received from the Board of Inland Revenue stating that the Board will offer no objection to the allowance of the annual subscriptions to the Union as an expense in the computation of the professional profits for income-tax purposes of members who are assessable under Schedule D of the Income Tax Act, 1918.

I am, Sir, yours faithfully,
JAMES NEAL,
General Secretary, Medical Defence Union.

49, Bedford-square, London, W.C. 1,
Nov. 21st, 1924.

PROPHYLACTIC QUININE IN INFLUENZA.

To the Editor of THE LANCET.

SIR,—Dr. Wishart's remarks last week on quinine in erysipelas recall the report on quinine as a prophylactic in influenza made by Generaloberärzt H. Kayser,[2] who found, in 1918, that 0·3 g. (5 gr.) every two or three days prevented an attack or secured that the attack should be slight, and that the same dose, given twice or oftener daily, protected patients from the dreaded lung infections. He further added that influenza first attacked his division on May 26th, 1918, when they were in damp, non-ventilated catacombs at Montdidier; their number of cases per 1000 per month were: May, 24; June, 20·7; July, 65·6; August, 4·7. There were fewer cases in the October pandemic, which relief he ascribed to quinine prophylaxis. The official British view seems to be [3] that quinine and salicylates were of little use.

I am, Sir, yours faithfully,
Nov. 24th, 1924. M.D., B.Sc.

THE GENERAL MEDICAL COUNCIL.

PRESIDENT'S ADDRESS.

THE winter session of the General Medical Council was opened on Nov. 25th, Sir DONALD MACALISTER presiding.

The President began by expressing regret that two much esteemed members of the Council had been removed by death. He said: "Lieut.-Col. Benjamin B. Connolly, C.B., of the Society of Apothecaries, after a long and honourable career in the military service of the Crown, became our kindly colleague and friend six years ago. Sir Sydney Russell-Wells, of the University of London, who joined the Council at the same time, and was from the outset eager to take part in its activities, was suddenly and untimely cut off in the full tide of his Parliamentary, academic, and professional life. Another eminent colleague, Dr. Matthew Hay, of the University of Aberdeen, who became a member in 1919, has resigned, I am sorry to say, largely on the ground of health. His professional distinction as a leader in sanitary science and preventive medicine added greatly to the repute of the Council, and in particular of its Public Health Committee. It is fortunate that we were able to profit by his enlightened coöperation in framing the improved rules for diplomas in public health, which the Council at the instance of that Committee has recently promulgated. We trust that freedom from some of his onerous official duties may conduce to his recovery. Prof. W. H. Gilmour, appointed in 1921 by the Privy Council as an additional member under the Dentists Act of that year, retires on ceasing to be a member of the first Dental Board. His experience in questions of dental education enabled him to contribute effectively to the working out of the new dental curriculum. If circumstances should hereafter admit of his return to office, the Council will be glad to welcome him back again.

New Members.

"Meanwhile, it will be your pleasure to welcome the new members who join us this session to carry on the work of the old. Mr. Samuel Osborn, representing the Society of Apothecaries, is a worthy representative also of the Red Cross, under which he has won high honours in many lands. Prof. Ashley Watson Mackintosh holds the Regius Chair of Medicine in Aberdeen, formerly occupied by our late colleague, Dr. David Finlay, and therein maintains the fine traditions of the northern school. The University of London sends us Dr. Herbert Lightfoot Eason, C.B., C.M.G., superintendent and senior ophthalmic surgeon of Guy's Hospital, whose knowledge of his special branch of surgery will, I doubt not, be drawn upon by the Council when matters relating to the medical curriculum and its limitations are in hand. The new additional member appointed by the Privy Council under the Dentists Act, 1921, is Mr. William Robert Ackland, who has lately been elected to the Dental Board. We shall hope to make his acquaintance during this session. The election of six Direct Representatives, to take office as from Jan. 1st, 1925, has been held during the present month. I am not yet officially apprised of the results, except those for Scotland and Ireland. There it is known that our old friends, Sir Norman Walker and Dr. Leonard Kidd, have been elected without opposition, and we may therefore still count (accidents apart) on finding them in their accustomed places next year. Of the four remaining members it would not become me, as returning officer, to go beyond an expression of satisfaction that they remain with us till the end of this year, at least. We shall learn more regarding the future Direct Representatives when we receive the return of the English Branch Council this afternoon.

The Irish Free State.

"The position as regards the Irish Free State is not yet authoritatively determined. Legislation, which was deemed necessary to remove doubts and to establish an explicit basis for complementary Government action in this country, has been initiated in the Irish Parliament, but it has not yet been carried through its final stages. Pending the completion of such legislation, the Irish Government asked in August last for an assurance that the position, as regards the General Medical Council, would 'continue unchanged for the present.' Acting on the advice of the Executive Committee, which had considered the general question on July 28th, I forwarded to the Lord President, for communication to the Free State Government through the Colonial Office, an assurance that 'all procedure respecting elections, registration of students and practitioners, &c., shall continue, until the meeting of the General Council in November next, as if the Medical Acts were in undisputed force and effect in the Free State.' This assurance has been duly implemented by me, on the authority of the Executive Committee; but it will now fall to the Council itself to consider the question, after receiving in camera such information on the subject as is at present at my disposal.

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[1] Jour. Amer. Med. Assoc., August 23rd, 1924.
[2] Zeitsch. f. Hygiene u. Infekt. Krank., July, 1924, p. 241.
[3] Med. Hist. of the War: Diseases of the War, vol. i., p. 208.

Reciprocity.

"As I reported to you in my last address, the Executive Committee have been conducting negotiations, through the Privy Council and the Foreign Office, with the Italian Government on the question of reciprocity with this country. By the operation of a recent Italian law the privilege of practising in Italy, hitherto accorded to British practitioners, has been practically abrogated, while the privileges accorded by this country to Italian practitioners remain intact. Considerable delay, apparently due to departmental difficulties, has arisen in the conclusion of a 'special agreement' which would have the effect of restoring normal reciprocal relations. We have now been notified that an assurance has been given to the British Ambassador, by the Acting Director-General of Political Affairs at the Italian Foreign Ministry, that the difficulties in question have been surmounted, that the general tenor of the 'special agreement' is approved, and that an official reply in that sense may be expected at an early date. We are informed that a considerable number of British practitioners are in the meantime detrimentally affected by the existing restrictions, and if a remedy is not speedily provided it will be the duty of the Executive Committee to propose to the Lord President of the Privy Council that steps should be taken to determine the application to Italy of Part II. of the Medical Act, 1886.

"A similar position has arisen in the Canadian Province of Saskatchewan, with which we have hitherto been in relations of reciprocity. A local law has been passed, apparently in ignorance of its sweeping effect, restricting provincial registration to British practitioners who are 'duly registered by the General Medical Council of Great Britain after examination by the said Council.' As the Council does not itself examine applicants for registration here, this provision excludes from provincial registration all who are henceforth admitted to our Register, and thereby abolishes reciprocal recognition. Inasmuch as practitioners licensed after examination by the provincial authorities still continue to be registrable in this country, it is clear that either the new provincial law must be amended, or the privilege extended to the Province of Saskatchewan must be discontinued. The position has been clearly explained to the local authorities and to the Dominion Medical Council, and the Executive Committee will await their considered replies, and also that of the New Brunswick Council, which has proposed a somewhat similar restriction on reciprocity, before making formal representations to the Privy Council on the subject.

Medical Degrees of Indian Universities.

"The Executive Committee at the May session considered the reports on the course of study and examinations for the medical degrees of four Indian universities furnished by Colonel Needham, the official inspector appointed by the Indian Government and approved by the Council. In the case of two universities, the Punjab and Calcutta, it was agreed that, on the fulfilment of certain conditions, the recognition by this Council of the M.B., B.S. degree for registration in this country, which is required under Section 13 of the Medical Act, 1886, should be continued till Nov. 30th, 1924. The inspector reports that the conditions are in course of being fulfilled by the Punjab University, and the Committee has resolved to continue recognition of its degrees, under the same conditions, till Nov. 30th, 1925.

"The University of Calcutta would appear to be indifferent to the recognition of its degrees as qualifications registrable in the British Register, for it has not seen its way to fulfil the conditions accepted by the other Indian universities; nor has it, as they have done, afforded the inspector the facilities necessary to enable him to report on the methods and standards it adopts in respect of the final examinations in medicine, surgery, and midwifery. Accordingly, in the absence of the data required to justify the Council in continuing to offer the guarantee laid down in the Medical Act, 1886, the recognition of Calcutta degrees in medicine and surgery will automatically lapse on Nov. 30th. Degrees granted by the Univesity of Calcutta after that date will not confer a title to registration qualifying for practice in the United Kingdom.

Advertising.

"The publication of the Council's Warning Notice on the subject of advertising has been followed by a number of communications, many of them anonymous or 'confidential,' calling attention to alleged infractions of the notice. These communications are, as a rule, unaccompanied by any evidence that the alleged 'advertisement' was directly or indirectly procured, sanctioned, or acquiesced in by the medical practitioner concerned. In some cases the 'advertisement' has been indignantly disclaimed and repudiated by the practitioner named therein, by letters addressed to the Council and to the persons responsible for its publication. It should be understood by the profession and the public that the Council, as a judicial body, cannot institute an inquiry into the conduct of a practitioner unless some substantial prima facie evidence implicating him is submitted for its consideration. Vague charges, which the complainant cannot or will not support by any such evidence, must necessarily be ignored by the Council.

"Your time during this session will, as usual in November, be mainly occupied in considering cases of discipline, in which the Penal Cases Committee have found that evidence calling for inquiry, and for answer on the part of a practitioner, is forthcoming. To meet the convenience of the additional members of the Council, the dental business of the session will be taken on Friday of this week. So far as can be foreseen, that business may be completed in one day, and the session may accordingly end within the week."

A vote of thanks was moved to the President for his address by Sir JAMES HODSDON, and seconded by Sir NORMAN WALKER. The Council then debated the position as regards the Irish Free State in camera, and proceeded later to the consideration of penal cases, of which there are 13 down for hearing.

DENTAL BOARD OF THE UNITED KINGDOM.

THE concluding meeting of the seventh session of the Dental Board of the United Kingdom was held on Nov. 13th. Following upon the consideration of the penal cases (THE LANCET, Nov. 22nd, p. 1093), the reports of various committees were received. Under the Education Grants Committee certain detailed recommendations were adopted, the same course being followed under the Propaganda Committee.

Interim reports from workers investigating the causes of dental diseases, forwarded by the Medical Research Council for the information of the Board, were read and approved. A report of the solicitor, on the appeals to the High Court of Justice from the decisions of the Dental Board, was considered. Three appeals were dealt with, while a further appeal is pending.

Obituary.

CRESSWELL BURROWS, M.D. CAMB., M.R.C.S. ENG.

Dr. Cresswell Burrows, assistant medical officer of the Public Health Department of the London County Council, died at Cambridge on Nov. 13th at the age of 47. He took his B.A. at Cambridge University in 1896, and studied medicine in London at St. Thomas's Hospital, qualifying M.R.C.S., L.R.C.P. in 1901. In 1910 he gained the M.D. Camb. Choosing to devote himself to the public health, he acted as resident medical officer at the Willesden Isolation Hospital and as assistant medical officer of the Metropolitan Asylums Board. In 1912 he was appointed assistant medical officer to the London County Council, and subsequently to that time, with the exception of his army service on the Western front during the war, he gave himself to the work of the school medical service in the East End of London. Immediately upon demobilisation he took up again his work in the London School Medical Service. A colleague writes of him : " Burrows preferred making his life work that of ameliorating the condition of the children in the East End of London rather than seeking a path in the profession which would lead to monetary advantage or renown. His quiet devotion to duty and his sterling integrity were a support and stimulus to his co-workers in the field he chose. He will be deeply mourned, not alone by his medical colleagues, but by a large circle of teachers, parents, and children in the London schools, who know and appreciate to the full his altruism and his self-sacrificing spirit."

MAURICE GILBERT HANNAY, M.D. BRUX., M.R.C.P. LOND., F.R.C.P. EDIN.

WITH the recent death of Dr. M. G. Hannay there has passed a promising dermatologist, who, though finding his métier rather late in his career, was rapidly securing recognition at the time of his premature death—for he was only 48 years old when a brief illness had a fatal issue. A student at Charing Cross Hospital, whence he qualified as M.R.C.S. Eng., taking also the M.D. Brux. with honours, he was for many years in general practice, but at the same time he worked regularly as clinical assistant in the Skin Department at Charing Cross. During ten years in this position he published notes in the dermatological papers under his own name or in association with the late Sir James Galloway, which showed grasp of many difficult clinical points; and as soon as the opportunity offered, he devoted his whole time to the subject, studying in Paris and Edinburgh as well as in London, and proceeding to the diplomas of M.R.C.P. Lond. and F.R.C.P. Edin.

During the war he saw service at the base hospitals in this country and later both in France and Germany, but at the conclusion of hostilities he settled down to his special line of practice in London, when he was elected honorary physician to St. John's Hospital for Diseases of the Skin, later becoming dean and lecturer at the London School of Dermatology. A personal friend writes : " Hannay's death will be keenly felt both by his patients past and present and by the professional colleagues with whom he had come into contact, for he was courteous, unselfish, and reliable, and always displayed the highest sense of duty."

FREDERICK JOHN PALEY, M.R.C.S. ENG., M.D. LOND.

THE medical profession in Hove and Brighton sustained a severe loss on Nov. 12th by the death from heart failure, following an operation for appendicitis, of Dr. F. J. Paley, surgeon to the Sussex County Hospital. He had been in practice in the twin towns for 34 years, and during that time rendered devoted services to many Catholic institutions, not only there but in the county of Sussex as well. Dr. Paley was born at Peterborough in 1859. He was educated at the Oratory School, Edgbaston, Birmingham, and he began his medical education at University College, London. He took the M.B. degree in 1883, and became L.R.C.P. and M.R.C.S. Eng. in the same year. For a short time he practised at Boscombe, Bournemouth, but afterwards went to Sussex as resident medical officer of St. George's Retreat, Burgess Hill. He proceeded to Brighton as house surgeon at the Royal Sussex County Hospital and afterwards held a number of other appointments. During this time he became recognised as a surgeon of unusual ability, and commencing in private practice in 1900 he had the honour that year of being elected President of the Brighton, Hove, and Sussex Medico-Chirurgical Society. Since 1907 he has been one of the hon. surgeons to the Royal Sussex County Hospital, Brighton. His personal qualities were most engaging. Striking alike physically and mentally, he was one to whom his colleagues could look for well-considered advice and guidance. During the war Dr. Paley was Commandant of the 2nd Eastern General Hospital at Brighton, holding the rank of lieutenant-colonel in the R.A.M.C. (T.F.).

Sincere sympathy will be extended to Mrs. Paley and other members of the family in their bereavement.

THE LATE DR. G. E. HASLIP.

IT has been pointed out to us that the wording of the obituary notice of Dr. G. E. Haslip in THE LANCET last week suggested that he was only chairman of the Medical Insurance Agency for the last two years of his life. Dr. Haslip was elected chairman of the Agency in succession to the late Dr. Henry Radcliffe Crocker in 1909, and during the whole period, including the last two years of his life, during much of which he was a serious invalid, he presided over the meetings. The cause of all the less prosperous members of the medical profession always lay near his heart, and his work as chairman of the M.I.A. for 15 years had its main stimulus in the fact that the prime object of the Agency was to earn for medical charities pecuniary support. During his chairmanship the Agency was able to devote to medical charities sums totalling over £12,250.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDING NOV. 15TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely : Small-pox, 51 ; scarlet fever, 2184 ; diphtheria, 1172 ; enteric fever, 69 ; pneumonia, 1013 ; puerperal fever, 55 ; cerebro-spinal fever, 6 ; acute poliomyelitis, 21 ; acute polio-encephalitis, 1 ; encephalitis lethargica, 31 ; dysentery, 10 ; ophthalmia neonatorum, 100. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 10 from scarlet fever, 45 from diphtheria, 35 from measles, 60 from influenza. In London itself the number of deaths from diphtheria was 17 and from influenza 15.

INSTITUTION OF SANITARY ENGINEERS. — A sessional meeting will be held at 7.30 P.M. on Wednesday, Dec. 3rd, at Caxton Hall, Westminster, S.W., at which a paper will be read by Mr. H. Alfred Roechling dealing with House Drainage, with Special Reference to the Intercepting Trap. A discussion will follow.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The General Board of Studies have appointed Mr. W. A. F. Balfour Browne (Caius) as University Lecturer in Zoology.—The Diploma in Medical Radiology and Electrology is to be granted to Dr. J. M. W. Morison, of Glasgow University.

UNIVERSITY OF LONDON.—A meeting of the Senate was held on Nov. 19th, Prof. E. A. Gardner, the Vice-Chancellor, being in the chair.—Mr. F. L. Hopwood, D.Sc. Lond., was appointed to the University Chair of Physics tenable at St. Bartholomew's Hospital Medical College. He had a distinguished career as a student at University and King's Colleges, London. He was demonstrator in physics at the Royal College of Science from 1904–06, and since 1906 at St. Bartholomew's Hospital Medical College. He has also held teaching posts at Bedford College and University College among other institutions. During the war he was for three years a research physicist to the Admiralty and received the thanks of the Admiralty Submarine Department and an award of £1000 for his inventions used by the Service. —The title of Reader in Human Embryology in the University was conferred on Mr. R. J. Gladstone, M.D., C.M. Aberd., F.R.C.S. Eng., in respect of the post held by him at King's College. In 1895 he was appointed junior, and in 1896 senior demonstrator of anatomy at Middlesex Hospital Medical School, and from 1909–13 he was lecturer on embryology at the same school. Since 1913 he has been lecturer and senior demonstrator in anatomy at King's College. He has published a large number of papers in the *Journal of Anatomy and Physiology*, the *Journal of Anatomy*, and other scientific periodicals.—It was resolved to institute two University travelling scholarships, open to internal and external graduates in all faculties, each of the value of £275 per annum, and three University post-graduate studentships (open to internal and external graduates in the faculties of Theology, Arts, Laws, Music, and Engineering) of the value of £150 per annum.—Mr. G. V. Anrep, D.Sc., was awarded the William Julius Mickle Fellowship for 1925 in respect of the work which he has carried out during the past five years in experimental physiology. The Fellowship is of the value of £200.—Dr. H. L. Eason was appointed to represent the University on the General Medical Council.

At the recent examination for the *Diploma in Psychological Medicine* the following candidates satisfied the examiners: With special knowledge of psychiatry: William McWilliam and Thomas P. Rees. With special knowledge of mental deficiency: Geoffrey F. Cobb and Anne Fairweather.

Entrance Scholarships and Exhibitions in Medicine, 1925.—Thirteen medical entrance scholarships and exhibitions of an aggregate total value of £1473, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered. The examinations for medical scholarships will commence on April 21st and June 30th, 1925. Full particulars and entry forms may be obtained from the Secretary of the Board, Mr. S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, London, S.E. 5.

A public lecture by Sir Gregory Foster on "The University of London, What It Is and What It May Be" has been arranged by the XXth Century Society of London Graduates. It will be delivered at the London School of Economics and Political Science, Kingsway, on Dec. 4th at 8.15 P.M. Admission is free.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—A. J. Fraser, Guy's Hosp.; L. Freeman, St. Thomas's Hosp.; C. H. Mason, St. Mary's Hosp.; K. Samaan, Manchester; Y. S. Wan, St. Bart.'s Hosp.; and H. Winstanley, Liverpool.

Medicine.—A. J. M. Davies, St. Mary's Hosp.; M. Murad, Birmingham; and Y. S. Wan, St. Bart.'s Hosp.

Forensic Medicine.—S. W. Cuff, St. Bart.'s Hosp.; L. Freeman, St. Thomas's Hosp.; Y. S. Wan, St. Bart.'s Hosp.; and D. Winstanley, Liverpool.

Midwifery.—C. L. Copeland, Univ. Coll. Hosp.; B. Davis, Bristol; J. Dywien, Guy's Hosp.; L. Freeman, St. Thomas's Hosp.; A. Kaplan and C. H. Mason, St. Mary's Hosp.; C. C. Taffs, St. Thomas's Hosp.; and Y. S. Wan, St. Bart.'s Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: A. J. Fraser and Y. S. Wan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The annual meeting of the Fellows and Members of the College took place at Lincoln's Inn-fields on Nov. 20th. Some 70 persons were present when Sir John Bland-Sutton took his seat. Among the questions put by those present, Mr. C. E. Wallis asked whether the Council of the College had received any complaint with regard to advertising, direct or oblique, on the part of Fellows or Members, and if it was proposed to deal with the offenders under Rule 16 of the College. The view of the President was that in such cases the lead of the General Medical Council, which had the power to call witnesses, should be followed. Dr. W. E. A. Worley then moved: "That this thirty-sixth annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College; moreover, this meeting requests that the President shall hereupon reply in detail to the two resolutions passed at the last annual meeting, and that he shall also state whether his Council has seriously considered any means whatever whereby the collective views of Members of the College may be ascertained on matters affecting their interests as Members." He said that a feeling of dissatisfaction justly existed amongst the Members at their exclusion from participation in College affairs. Dr. M. I. Finucane seconded the motion, stating that the experience of the Members was worth cultivating in such matters as the medical curriculum and the standards of examination, while the appointment by the Council of the representative of the College on the General Medical Council was a further illustration of an undemocratic system. Dr. Redmond Roche, President of the Society of Members, supported the motion, and made special reference to the protest of Thomas Wakley against the undemocratic powers of the Council of the College in his day. The President declared that the resolution had been carried unanimously, and the meeting closed after a brief discussion as to the membership of the Society of Members, during which Dr. Roche volunteered to furnish the numbers on the spot.

ROYAL DENTAL HOSPITAL DINNER AND "AT HOME."—This hospital held its annual "At home" on Nov. 22nd, which was attended by a large number of past students as well as visitors from other hospitals. Many clinical cases of dental interest had been collected. Among them were rare conditions, such as leontiasis ossea, osteitis fibrosa, macroglossia, odontomes of various kinds, and angioma of the palate. Orthodontics was represented by children showing almost every variety of irregularity of the teeth. Completed cases were presented, which afforded a striking contrast to the original condition as shown in the models and exemplified the successful character of the treatment. The prosthetic side of dentistry was represented by a number of patients wearing dentures made by pupils. The work showed a high standard of excellence which was the more striking since the cases were all of unusual difficulty. Patients who had been trained in the speech clinic attached to the hospital were also present. Pathological, microscopical, and radiological exhibits were also shown. The dinner was held at the Trocadero in the evening of the same day and was presided over by Mr. Warwick James, a former member of the staff. Mr. James, in proposing the toast of "The Hospital," sketched its career from its foundation in Soho-square in 1858, to its present site in Leicester-square. He said that two dentists who had received their education in the hospital in Soho-square were still alive, Sir Charles Tomes and Mr. Howard Mummery. The hospital had produced many eminent dentists and there was scarcely a dental hospital in England which had not a "Royal" man on its staff. Mr. Stobie, the Dean, in his reply, said that the hospital now had 202 students. A new children's department had been equipped, and a legacy by the late Frederick Lonnon had been used to found a bursary which would be awarded on the subject of the treatment of dental disease in children. A new radiological department had been made and a large sports ground acquired which was already in use. He foreshadowed a more extensive development of post-graduate teaching. Mr. Coysh responded for the past students, and Mr. Cohn, the Saunders Scholar, for the present students. "The Health of the Visitors" was proposed by Mr. N. Grellier and responded to by Sir John Bland-Sutton, who said that when he commenced teaching anatomy at the Middlesex Hospital there were a good many dental students. He soon found that the descriptions of the teeth in the text-books on anatomy was belated and he obtained permission to attend the lectures at the Royal Dental Hospital, then in Soho-square. The lecturer in that subject was Sir Charles Tomes and from that time dated his interest in odontology. At first the hospital was started to alleviate pain of dental origin; but it was seen realised by some of those connected with the hospital that dental surgery must come to be regarded as a branch of general surgery, since it was based on anatomy, physiology, and pathology. A feeling began to grow up which had increased since the war, that the dental surgeon should not only look after the teeth, but should take over the treatment of infections and injuries of the jaws, just as the orthopædic surgeon had taken over the treatment of diseases of bone. He thought that the time was coming when general hospitals, especially those engaged in teaching, would have to provide beds for the treatment of dental disease, and that the dental surgeon would be on the same footing as the ophthalmic surgeon, orthopædic surgeon, and laryngologist. It was said that the most indestructible part of the body was the bones and teeth: recently, at Charing Cross the bones of a mammoth had been found, and he himself had found the teeth of the mammoth in a tunnel being bored under the Thames. Yet in the living man the teeth and bones were easily destroyed by infective processes. It was found in the war that a bone could be reduced to the consistency of cheese as a result of infection following gunshot wounds. There was still much to be learned about the development of bone, and they did not know the forces which caused the eruption and loss of the teeth. He was glad to see the position held by odontology at the present time and that it continued to attract so many gifted minds.

MEDICO-LEGAL SOCIETY.—The annual dinner will be held at the Holborn Restaurant, London, W.C., on Friday, Dec. 12th, at 7 for 7.15 P.M., when Lord Justice Atkin, the President of the society, will preside. The price of the dinner is 14*s.* 6*d.*, exclusive of wines.

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS.—A meeting will be held on Dec. 10th, at 8 P.M., at Essex Hall, Essex-street, Strand, when Miss Eleanor F. Rathbone will lecture on Family Endowment and Birth Control. Mrs. Marie Stopes, D.Sc., in the chair.

SCOTTISH WOMEN'S HOSPITALS' ASSOCIATION OF THE ROYAL FREE HOSPITAL.—The annual meeting of this association will be held at the hospital, Gray's Inn-road, W.C., to-day, Saturday, Nov. 29th, at 3 P.M. Lady Ossulston will be in the chair.

WE are informed by Messrs. Allen and Hanburys, Ltd., and The British Drug Houses, Ltd., that Dr. S. W. F. Underhill, now senior demonstrator of physiology at St. Bartholomew's Hospital, has accepted an appointment as research physiologist in connexion with the production of "A.B." Brand Insulin.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The Finlayson memorial lectures were delivered by Sir Leonard Rogers, F.R.S., in the Faculty Hall, Glasgow, on Nov. 20th and 24th. The subject of the lectures was "Pathological Evidence Bearing on Disease Incidence in Calcutta," the first lecture being "Disease in General" and the second "Tumours, Simple and Malignant."

THE LATE SIR MALCOLM MORRIS.—The consulting and active staff of St. John's Hospital, Leicester-square, together with the staff of lecturers at the London School of Dermatology attached, have subscribed for a lecture-desk, with a suitable inscription-plate, which has been placed in the theatre in memory of their friend and colleague, Sir Malcolm Morris, who was a member of the consulting staff at the time of his death in February last.

ELIZABETH GARRETT ANDERSON HOSPITAL.—In support of the Extension Appeal Fund for this hospital, Lady Plender, the treasurer, has received a letter from Queen Alexandra, wishing success to the hospital, and continuing: "Queen Alexandra remembers with pleasure that she laid the foundation-stone of the present building, and Her Majesty hopes that all who have at heart the welfare of women and children will help the Extension Appeal Fund, and render service of some kind to forward the success of the enlargement of the hospital of which she is patron."

DONATIONS AND BEQUESTS.—Mr. Tom Hards Wesley, Bournemouth, gave his residuary property, amounting to about £28,000, as to one-third to Dr. Barnardo's Homes, one-fourth to Lord Mayor Treloar's Cripples' Home and College Alton, one-fourth to St. Dunstan's Hostel for Blinded Sailors and Soldiers, one-sixth to the Brompton Hospital for Cancer.—Mr. E. F. Callister, of Birkenhead, has given £2000 to the Liverpool Royal Infirmary for the new equipment in the X ray department, and the same institution has received this year's final contribution of £1600 from the Liverpool Hospital Saturday and Sunday Fund; and from the same Fund the Liverpool Maternity Hospital has received £240 and the Royal Liverpool Children's Infirmary £540.—Miss Dorothea Vanderstegen, of Caversham, Oxon., left £1000 to the Children's Hospital, Paddington Green, London, W., for an "Erle Cot" in memory of Henry Percival Erle and Grace Ellen Erle, and £500 to Dr. Barnardo's Homes.—Miss Emma Rundle, St. Austell, Cornwall, left the residue of her estate, amounting to about £4700, to the National Institution for the Blind.—Miss Ethel Maitland, Ryde, Isle of Wight, left £500 each to Dr. Barnardo's Homes, to the Portsmouth and South Hants Eye and Ear Infirmary, and to the Treloar Home for Crippled Children.—Mr. Archibald Davies, naval architect, of Aigburgh, Liverpool, left £15,400. Subject to a few inconsiderable legacies he left practically the whole of his estate to the Stanley Hospital, Liverpool.—By the will of the late Mrs. M. E. Salting the testatrix left among other bequests £2000 each to the Middlesex Hospital, St. Mary's Hospital, Paddington, and the Cancer Hospital, Fulham-road; £1000 each to the Brompton Hospital for Consumption and King's College Hospital.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Dec. 2nd.

ORTHOPÆDICS: at 8.30 P.M.
Discussion:
On Diagnosis and Treatment of Affections of the Sacro-Iliac Joint, to be opened by Mr. P. Jenner Verrall.

PATHOLOGY: at 8.30 P.M.
Laboratory Meeting at the London Hospital, E.
Prof. W. Bulloch: Disinfection of Catgut.
Dr. G. T. Western: Routine Diagnosis of Gonorrhœa by Cultures.
Dr. P. Fildes: Preparation of Serum for Culture Media.
Prof. H. E. Roaf: Analysis of Colour Blindness.
Dr. W. A. M. Smart: Nomography Applied to Medicine.
Prof. W. Wright: Pathological Specimens.
Mr. F. A. Hocking: Inaccuracy of Syringes.
Prof. H. M. Turnbull and Dr. Dorothy S. Russell: Pathological Specimens.

Wednesday, Dec. 3rd.

SURGERY: at 8.30 P.M.
Discussion:
On the Diagnosis of Malignant Disease of the Thyroid Gland, to be opened by Mr. James Berry.
The following have agreed to speak: Mr. Wilfred Trotter, Mr. A. J. Walton, Mr. T. P. Dunhill, Dr. G. W. Nicholson, Sir Charters Symonds.
There will be a demonstration of specimens and microscopic slides, arranged by Mr. Berry and Dr. Williamson, during the afternoon, from 3 P.M.

LARYNGOLOGY.
Members of this Section are specially invited to attend this meeting.

Thursday, Dec. 4th.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.
Specimen:
Mr. Sidney Forsdike: Vesical Calculus forming on Foreign Body.
Papers:
Mr. Arthur Crook: The Incidence of Glycosuria during Pregnancy.
Prof. A. Louise McIlroy: The Treatment of Shock and the Relative Loss of Heat and Loss of Weight in the New-born.

DERMATOLOGY
LARYNGOLOGY } at 8 P.M.
ODONTOLOGY
Joint Discussion on
Focal Sepsis in Relation to Diseases of the Skin.
Openers:
Mr. J. F. O'Malley (for the Section of Laryngology).
Dr. H. W. Barber (for the Section of Dermatology).
Sir Kenneth Goadby (for the Section of Odontology).

Friday, Dec. 5th.

LARYNGOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases and Specimens will be shown by Mr. A. J. Wright, Dr. Dan McKenzie, Sir James Dundas-Grant, Mr. F. J. Cleminson, Sir StClair Thomson, Mr. Howarth, and others.

ANÆSTHETICS.
The December meeting of this Section is postponed to Dec. 12th.

Saturday, Dec. 6th.

OTOLOGY: at 10 A.M. (Cases at 9.15 A.M.)
Cases and Specimens will be shown by Mr. Sydney Scott, Dr. Dan McKenzie, Mr. Cleminson, Mr. Just, and others.

MANCHESTER MEDICAL SOCIETY.
WEDNESDAY, Dec. 3rd.—4.30 P.M. (at the University of Manchester). Dr. E. B. Leech, Dr. D. Dougal, and Mr. H. Platt: Discussion on Chronic Backache in Women.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.

Monday, Dec. 1st, to Saturday, Dec. 6th.—West Lecture Hall, Royal Society of Medicine, 1, Wimpole-street, W. Lecture arranged by the Fellowship of Medicine, and open to all members of the profession. At 5.30 p.m., Monday, Dec. 1st, Mr. Herbert J. Paterson: Cancer of the Stomach.—Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E. Special Course in Medicine, Surgery, and Gynæcology. Lecture-Demonstrations in the Wards and Out-patient Departments. Third week.—Infants Hospital, Vincent-square, Westminster, S.W. Special Course in Diseases of Infants consisting of Clinical Demonstrations, "Round Table" consultations, lectures, &c. First week.—Hospital for Diseases of the Skin, Blackfriars. Course in Dermatology, consisting of instruction in Out-patient Department every afternoon at 2.30, and a Venereal Clinic Tuesday and Friday. First week.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Dec. 1st.—12 noon, Mr. Simmonds: Applied Anatomy. 2 p.m., Mr. Addison: Surgical Wards. 2 p.m., Mr. Bishop Harman: Eye Dept.

Tuesday.—11 a.m., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Wednesday.—12.15 p.m., Dr. Burnford: Medical Pathology. 2 p.m., Dr. Owen: Medical Out-patients. 2.30 p.m., Mr. Donald Armour: Surgical Wards.

Thursday.—11 a.m., Mr. Simson: Gynæcological Wards. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 4.15 p.m., Lecture, Dr. Pernet: Psoriasis.

Friday.—11 a.m., Dr. McDougal: Electrical Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 p.m., Mr. Vlasto: Throat, Nose, and Ear Dept.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Medical Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, Dec. 2nd.—4.30 p.m., Mr. Norman Fleming: Some Points in Medical Ophthalmology.

Friday.—4.30 p.m., Dr. S. Cochrane Shanks: Gastric Ulcer from an X Ray Standpoint.

Daily: In-patient and Out-patient Clinics in General and Special Departments, Operations, &c.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Dec. 2nd.—5 p.m., Dr. Haldin Davis: Acne Rosacea.

Thursday.—5 p.m., Dr. J. H. Sequeira: Tuberculosis Cutis.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Dec. 4th.—4 p.m., Dr. A. M. H. Gray: Tuberculous Lesions of the Skin in Children.

ROYAL DENTAL HOSPITAL OF LONDON POST-GRADUATE LECTURES.

Wednesday, Dec. 3rd.—5 p.m., Mr. A. T. Pitts: Post-normal Occlusion.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, Dec. 2nd.—4.15 p.m., Dr. J. Wharton: Ophthalmic Cases.

Friday.—4.15 p.m., Dr. D. E. Core: Early Mental Disease, its Differentiation and Prognosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 p.m.)

Tuesday, Dec. 2nd.—(At the Jessop Hospital.) Prof. Phillips: Some Obstetric Difficulties.

Friday.—(At the Royal Hospital.) Dr. Wilkinson: The Diagnosis and Treatment of Obstructive Dyspnœa.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

Tuesday, Dec. 2nd.—4 p.m., Dr. Hynd: The Chemical Constitution of the Urine and Blood in Health and Disease.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-sq., W.C. (Course of Lectures on the Health of the Commonwealth.)

Wednesday, Dec. 3rd.—4 p.m., Dr. C. K. Millard: The Disposal of the Dead.

CHADWICK PUBLIC LECTURES.

Wednesday, Dec. 3rd.—5.15 p.m. (at the Medical Society's Rooms, 11, Chandos-street, W.). Dr. W. W. Feldman: Post-Child Physiology and Hygiene.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.
(At the Medical Society of London, 11, Chandos-street, W.)

Monday, Dec. 1st.—6 p.m., Dr. W. A. Potts: Crime and Delinquency.

Appointments.

Daley, W. A., M.D., B.S. Lond., D.P.H. Camb., has been appointed Medical Officer of Health for Hull.

Davies, W. J., M.R.C.S., L.R.C.P. Lond., Certifying Surgeon under the Factory and Workshop Acts for Aberayron, Cardiganshire.

Findlay, J., M.D. Edin., Medical Referee under the Workmen's Compensation Act for the Districts of the Blackpool and Kirkham County Courts.

Thomson, Sir StClair, M.D. Lond., F.R.C.S. Eng., F.R.C.P. Lond., Emeritus Professor of Laryngology, King's College, and Consulting Surgeon for Diseases of the Throat and Nose, King's College Hospital.

Wilson, Edric F., F.R.C.S. Eng., Assistant Surgeon, Royal Albert Hospital, Devonport.

Queen Charlotte's Maternity Hospital: Cargill, R. E. D. B.M., B.Ch. Oxf., Senior Resident Medical Officer; Saunders, Roy M., M.B., Ch.B. Edin., and Storey, A. G., M.B., B.Ch. Camb., Assistant Resident Medical Officers.

St. Thomas's Hospital: Cooke, A. M., M.B., B.Ch. Oxf., Turney, H. F., M.B., B.Ch. Oxf., Walker, E. G. L., M.R.C.S., L.R.C.P. Lond., McLean, W. W., M.R.C.S., L.R.C.P. Lond., Thwaites, W. G., M.R.C.S., L.R.C.P. Lond. Gervis, W. H., M.R.C.S., L.R.C.P. Lond., Hudson, M. W. P., M.R.C.S., L.R.C.P. Lond., and Starkey, R. S., M.R.C.S., L.R.C.P. Lond., Casualty Officers and Resident Anæsthetists; Hope-Simpson, J. W., M.B., B.Ch. Camb., Yates, H., M.R.C.S., L.R.C.P. Lond., Creed, R. S., M.B., B.Ch. Oxf., and Berridge, W. C. M., M.R.C.S., L.R.C.P. Lond., Resident House Physicians; Briggs, T. F., M.R.C.S., L.R.C.P. Lond., Resident House Physician for Children: Jeffery, A. L. P., M.B., B.S. Lond., Walford, A. S. H., M.B., B.Ch. Camb., Webb-Peploe, M. H., M.B., B.Ch. Camb., and Metcalfe, G. A., M.B., B.Ch. Camb., Resident House Surgeons: Allan, F. G., M.R.C.S., L.R.C.P. Lond., Resident Orthopædic House Surgeon; Rees, E. J., M.R.C.S., L.R.C.P. Lond., Resident House Surgeon for Ear; Davies, D. V., M.R.C.S., L.R.C.P. Lond., Resident House Surgeon for Throat; Weaver-Adams, E. R., M.B., B.Ch. Camb., Senior Obstetric House Physician; Darlington, A. F. D., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Physician; Jones, H. V. M., M.B., B.S. Lond., Senior Ophthalmic House Surgeon; Heath, W. E., M.R.C.S., L.R.C.P. Lond., Junior Ophthalmic House Surgeon; Neilson, D. F. A., F.R.C.S. Eng., Oliver, J. O., M.R.C.S., L.R.C.P. Lond., Thompson, W. D. R., M.R.C.S., L.R.C.P. Lond., Barron, H. T., M.D. Lond., Doyle, A. F., M.R.C.S., L.R.C.P. Lond., Taylor Rea, R. H., M.R.C.S, L.R.C.P. Lond., Marriner, H. I., F.R.C.S. Edin., Pilot, R., M.R.C.S., L.R.C.P. Lond., Joseph, W. E., M.R.C.S., L.R.C.P. Lond., Lloyd-Williams, P., M.R.C.S., L.R.C.P., Lond., L.D.S., Barrett, J. C., V.C., M.R.C.S., L.R.C.P. Lond., Boggon, R. H., M.R.C.S., L.R.C.P. Lond., Briscoe, A. D., M.R.C.S., L.R.C.P. Lond., Thompson, J. H. G., M.R.C.S., L.R.C.P. Lond., Archer, E. C., M.R.C.S., L.R.C.P. Lond., Dobie, J. M., M.R.C.S., L.R.C.P. Lond., Marks, D. P., M.R.C.S., L.R.C.P. Lond., Wrigley, A. J., M.R.C.S., L.R.C.P. Lond., Copeman, W. S. C., M.R.C.S., L.R.C.P. Lond., Marcano, G. R., M.R.C.S., L.R.C.P. Lond., Shires, B., M.B., Ch.B. Edin., de Jersey, G. W. S., M.R.C.S., L.R.C.P. Lond., Mills, J. D., M.R.C.S., L.R.C.P. Lond., Macevoy, H. B., M.R.C.S., L.R.C.P. Lond., Rees, W. E., M.R.C.S., L.R.C.P. Lond., Rickman, J., M.B., B.Ch. Camb., Bauwens, P., M.R.C.S., L.R.C.P. Lond., Bailey, J. M., M.R.C.S., L.R.C.P. Lond., Barron, R. M., M.R.C.S., L.R.C.P. Lond., and Gavin, A. G. D., M.R.C.S., L.R.C.P. Lond., Chief or Clinical Assistants.

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, Clapham-road, S.W.—Res. M.O. at rate of £100.

Cambridgeshire Tuberculosis Colony.—H.P. £100.

Charing Cross Hospital, W.C.—Res. M.O. £400.

Chelmsford Administrative County of Essex.—Two Asst. County M.O.H.'s. Each £600.

Croydon General Hospital.—Hon. Orthop. S.

Derbyshire Royal Infirmary.—Hon. Asst. S. Also Ophthal. H.S. £200.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. at rate of £125.

Exminster, Devon Mental Hospital.—Jun. A.M.O. £300.

Gordon Hospital, Vauxhall Bridge-road, S.W.—Res. H.S. at rate of £75.

Greenwich, Dreadnought Hospital.—H.P. and H.S. at rate of £150.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P., and H.S. Also Cas. Med. O. and Cas. Surg. O. All at rate of £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each £50.

Kingston Union Hospital.—Asst. R.M.O. at rate of £350.

London Hospital, E.—First Asst. to Medical Firm. £400.

London Lock Hospital, 91, Dean-street, W.—Clin. Asstships.

London Lock Hospital, 283, Harrow-road, W.—Second H.S. £150.

London Temperance Hospital, Hampstead-road, N.W.—R.M.O. at rate of £175.

Maidstone, Kent County Mental Hospital.—Asst. M.O. £300.

Manchester Christie Hospital.—Cancer Research Worker. £500.

Manchester, Eccles and Patricroft Hospital.—H.S. £200.

Manchester Hospital for Consumption, &c., Bowdon, Cheshire.—R.M.O. £200.

Manchester Royal Infirmary.—Hon. Asst. Radiologist. Also R.M.O. £200.

Miller General Hospital, Greenwich-road, S.E.—Part-time Asst. to Out-patient Dept. £150.

Ministry of Health, Whitehall, S.W.—M.O. £600 and bonus.

Oxford, Radcliffe Infirmary and County Hospital.—H.S. and Obstet. H.P. Each at rate of £120.

Oxford, The Warneford.—Second Asst. M.O. £250.

Park Royal Hospital, Acton Lane, W.—Res. Asst. M.O. £350. bonus, &c.

Poplar Hospital for Accidents, East India Dock-road, E.—Hon. Dent. S.

Prince of Wales's General Hospital, N.—Hon. Clin. Assts.

Queen Mary's Hospital, Stratford, E.—Res. M.O., H.P., two H.S.'s, Obstet. H.S., and H.P. and Cas. O.

Rotherham Hospital.—Hon. Radiologist.

Royal Army Medical Corps.—Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Surg. and Gynæcological Reg. £250.

St. Giles' Hospital, Camberwell, S.E.—Consultant Dental Surgeon.

St. John's Hospital for Diseases of the Skin, Leicester-square, W.C.—Hon. Asst. P.

St. Peter's Hospital for Stone, &c., Covent Garden, W.C.—Clin. Assts.

Sheffield Royal Infirmary.—H.S., Asst. Cas. O. and Asst. Ophth. H.S. Each £60.

Sheffield University.—Asst. Pathologist. £500.

Staffordshire General Infirmary, Stafford.—H.S. at rate of £150.

West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Asst. P., Laryngologist. Also Otologist.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S. and Res. Cas. O. Each at rate of £100.

Wigan Infirmary.—Third H.S. at rate of £150.

Willesden General Hospital, Harlesden-road, N.W.—Vacancy on Hon. Med. Staff.

Winchester, Hampshire County Council.— Asst. M.O.H. £600.

Windsor, King Edward VII. Hospital.—Jun. H.S. at rate of £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Coalville, Leicester; Kirriemuir, Forfar.

Births, Marriages, and Deaths.

BIRTHS.

COURTNEY.—On Nov. 17th, the wife of J. M. Courtney, M.R.C.S., L.R.C.P., of Castle Hill House, Lynton, North Devon, of a son.

MULLINS.—On Nov. 18th, at New-street, Wells, Somerset, the wife of Dr. G. E. Mullins, of a daughter.

SHIPTON.—On Nov. 18th, at Buxton, the wife of William Shipton, M.D., of a daughter.

MARRIAGES.

MOORE—O'CONNOR.—On Nov. 13th, at St. James's Church, Spanish-place, William A. Moore, M.B., B.A., Freshford, Co. Kilkenny, Ireland, to Mary O'Connor, M.B., B.D.S., Woburn-place, London.

DEATHS.

COUMBE.—On Nov. 10th, at Tunbridge Wells, John Batten Coumbe, F.R.C.S., aged 71.

DIXON.—On Nov. 17th, at Newlands, Sheringham, Thomas Arthur Dixon, M.D., Lieut.-Colonel, late R.A.M.C., aged 71.

GLENISTER.—On Nov. 17th, at Fairlight, Sussex, Wilfrid Montague Glenister, M.R.C.S., L.R.C.P., of "The Lindalls," Amberley.

LINDSEY.—At Sunny Bank British Hospital, Cannes, S. France, on the 19th inst., Mark Basil Lindsey, late of "Beaumont," Portman Crescent, Bournemouth, M.R.C.S., L.R.C.P., Capt. R.A.M.C., 1915–19.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Notes, Comments, and Abstracts.

VISION IN THE AIR SERVICES.

BY KENNETH R. SMITH, M.D., B.S. LOND.,

LATE R.A.F. MEDICAL SERVICE.

BINOCULAR vision is necessary for flying, and this necessity has compelled the Air Services in this and other countries to pay great attention to the subject. The pilot has to estimate his distance from the ground when he wants to land, and has no help from perspective, for the gap between his moving plane and the earth or sea beneath it has no series of objects leading from one to the other as along a road, and his estimate depends entirely on the sense of space obtained by vision with both eyes together. If this fails him, he is liable to "flatten out" too soon or too late; the former makes his plane drop to the ground instead of gliding on to it, and the latter may drive the nose of the plane forcibly to earth with disastrous results.

Necessity of Binocular Vision.

Bad landings from errors of visual judgment appear to be the universal experience in all countries where there is flying. The United States Air Service Medical Manua mentions defect of visual judgment as one of the greatest causes of exclusion from the Service, and that this is due t a failure in binocular vision is certain. Anyone intereste should be thoroughly convinced of his inability to estimat distance with one eye, and for this purpose a small apparatus made of wire and resembling a street lamp in shape, is kep at the Central Medical Board R.A.F., so that every medica officer may try for himself and know from his own observation that he cannot estimate distance with one eye alone. A piece of wire bent into two rings thus, O O, serves equall well; it should be held up to the light and looked at wit one eye while the other is firmly closed. If the small en is further away from the eye it may appear to come nearer as if the little apparatus was turned inside out; but, in an case, there is no visual certainty of the relative position of th two rings until the other eye is opened, when it is impossibl to deceive oneself as to their relative position, and it becom easy to understand the confidence which normal binocula vision gives to a pilot when he is landing, and the uncertaint in the process when he has the vision of only one eye t guide him.

There is nothing newly discovered in this; that man people have a "master eye" is a familiar fact, and if th master eye happens to be the left one it has been foun inconvenient for shooting, and to this extent it has bee regarded as a disability. The needs of flying have demonstrated that the disability, which a habit of using the visio of one eye only involves, is of far greater importance—tha it destroys the visual judgment which is essential to th man who flies and is needed in the ordinary affairs of dail life, especially to the man who drives a car or who strive for excellence in ball games, but also to the factory han and whenever there is visual control in action. A liabilit to loss of visual judgment from monocular vision may serv as a definition of this defect.

Examination of the Eyes.

The following is an account of the routine eye examinatio in the R.A.F.:—

The vision of each eye is tested in the usual way wit test types at six metres, and the examination for errors o refraction is carried out. Myopia is considered an objection but the acceptance of a plus lens of low power is favourabl regarded. Colour vision is also investigated.

Four tests are mainly relied on in reference to the questio of normal binocular vision:—

(1) *Test for Power of Convergence.*

Hold a pencil in front of the patient about 12 inche from his eyes, with the point on a level with the root of th nose. Tell him to look at the point, and then move i steadily towards him and observe what happens to hi eyes as it approaches them.

(*a*) Both eyes may converge, "fixing" the point of th pencil until it is within an inch or two from the root of th nose. This shows that the power of convergence is ver good, and the result is recorded as V.G. under the headin *convergence*, and a note is made of the distance of the poin of the pencil from the eyes at the termination of the test.

(*b*) As the pencil point approaches one eye may cease t turn inwards to "fix" it, and may even wander outwards The distance of the point of the pencil from the eyes whe this occurs is noted under the same heading, thus: V.G inside 2 in.; G., from 2 to 3 in.; Fair, from 3 to 4 in. Poor, outside 4 in.

(*c*) Both eyes may fail to keep up fixation. The patient may even resist by throwing back his head, or/and complain either that "it hurts him to follow the pencil" or that he "sees double" when the pencil is nearer his eyes than 10 inches. *In such cases convergence is defective.*

(2) *Cover Test.*

Hold a pencil in front of the patient and ask him to look at the point of it as before. Cover one eye for a few seconds, and then uncover and observe whether the eye moves as it is uncovered.

(*a*) There may be no movement; both eyes may remain "fixed" on the point of the pencil whether one eye is covered or not. This is the normal condition.

(*b*) There may be movement inwards or outwards on uncovering. The eye which has been covered has not remained "fixed" on the point of the pencil and moves to regain its position when the cover is taken away. This failure to remain "fixed" is described as latent divergence or latent convergence, and the recovery from it may be rapid, sluggish, or slow, and it may be preceded by an observable pause or lag. Movement indicates defect of ocular muscle balance, rapid recovery shows that it is slight, delay indicates greater defect.

(*c*) Both eyes may move on uncovering. The one which was covered "fixes" the point of the pencil, and the other moves away and then regains its position. This has been called "refixation," and indicates that the eye which was covered was a "master eye."

(3) *The Bishop Harman Diaphragm Test.*

With the instrument set for the measured distance between the pupils, and the letters A B C D E F G on the card, it will be found, approximately, (1) that with the aperture fully open all the letters except the two outside ones are seen by both eyes; that as the aperture is lessened, (2) at 15 the letters A B C D E are seen by the right eye and C D E F G by the left eye, so that the three letters C D E are seen by both eyes; (3) at 5 this number is reduced to one, the D only is seen by both eyes—that is, the right eye sees A B C D and the left eye sees D E F G; (4) at zero half of the D is seen with one eye and half of it with the other, *no part of the set is seen with both eyes.*

The patient takes the instrument and is told to look through the aperture at the letters, to direct his gaze to the central one, and to report at once if anything happens. The aperture is then steadily lessened. The index may arrive at zero without anything happening—that is, the subject still sees all the letters in their true position as at first; this is evidence of good ocular muscle balance, for he is seeing half of the set of letters with his right eye and the other half with the left eye, and the eyes are maintaining their position as truly as when the set was seen by both eyes.

Or the patient may report that something is happening before the index arrives at zero—for example, when it points to 5 he may say (*a*) that he only sees A B C D; this is evidence of "neglect" in the left eye, for he sees only the letters then visible to the right eye. (*b*) Or he may say that the letters have divided into two sets, A B C D on one side and D E F G on the other, with a dark line between them; this is evidence that one eye has turned outwards (exophoria), and as D is seen in each set of letters, of diplopia. (*c*) Or he may say that the middle letters crowd together and overlap one another, indicating that the eyes have turned inwards (esophoria). (*d*) Or that the letters on one side have taken a higher or a lower level than those on the other side (hyperphoria or hypophoria).

The aperture can be lessened below the zero mark on the scale, so that the middle letter is not seen by either eye, and the edge of the shutter may be seen as a black line in its place; if, when this occurs, the other letters maintain their position as at first, a perfect condition of muscle balance is indicated.

On the other hand, if at any point the appearance of the letters is altered as specified in the paragraphs (*a*), (*b*), (*c*), and (*d*), this indicates that at this point binocular single vision is just breaking down. If this occurs at any point over 3 on the scale defect is indicated.

Subsequent tests after a period of eye-training serve to show whether improvement has taken place, and, if so, to what extent.

The Bishop Harman diaphragm test thus serves to show: (1) perfect binocular single vision, (2) its liability to break down, (3) the direction in which the eyes move when the breakdown occurs, (4) the neglect or double vision which attends this movement.

(4) *The Red-Green Test.*

This test is based on the fact that red glass of suitable density will not allow green light to pass through it, and vice versa, so that spectacles in which red glass covers the right eye, and green glass covers the left one, deprive the right eye of the power of seeing green and the left eye of seeing red. Such spectacles are used in this test, and the patient wearing them is requested to look at an illuminated slot in a box 20 feet away from him. This slot, 5 in. by $\frac{1}{2}$ in., is vertical and is glazed for half its length with red glass and for the other half with green glass. A similar slot placed horizontally can be used if desired. The patient equipped with the spectacles sees the red half of the slot with one eye and the green half with the other.

He is asked to describe what he sees and may say:—

1. That he sees two lights, the red and the green, (*a*) in their proper position one above the other—this indicates correct ocular muscle balance. (*b*) That one light is to the right or to the left of the other or that it is displaced upwards or downwards. This indicates loss of ocular muscle balance, exophoria or esophoria, and/or hyperphoria or hypophoria. (*c*) That one of the lights wanders from its original position and back again; this shows a tendency to heterophoria, with some or full power of correction.

2. That he sees two lights at first but that one disappears occasionally; this indicates the presence of a master-eye if it is always the same light which disappears, or of alternating neglect if there are occasional disappearances of one or the other, the red or the green.

3. That he sees "either colour singly, but never the two together."

N.B.—The two colours must be completely separated to constitute evidence of the existence of heterophoria; when they touch one another corner to corner it is noted as a tendency to it only.

Interpretation of Results of Tests.

These four tests are directed mainly to discovering whether there is any lack of perfect coördination in the movements of the eyes. There may be direct evidence of neglect in the Bishop Harman diaphragm test by the disappearance of one-half of the letters, or by the disappearance of the red or the green in red-green test; but what one is trying to discover is (1) whether the subject of the examination always uses both eyes together or (2) whether he sometimes uses both together and at other times uses only one; he may have a habit of using the right eye and neglecting the vision of the left, he then has a master-eye (the right one in this case, but it may be vice versa); or he may have a habit of "alternating neglect," that is, his vision is sometimes binocular and sometimes "one-eyed," but the neglect may be in either eye. The cover test shows just what the neglected eye does when it ceases to have its share of attention, it tends to turn away from the direct line of vision. If, then, the tests show that the condition of ocular muscle balance is normal, that when, without the knowledge of the subject, each eye is acting independently of the other, they keep their direction truly, and show no tendency to wander from it, in or out, up or down, it is a practical certainty that they have no habit of doing so, and that binocular vision is not liable to disturbance but is constant.

On the other hand, with any marked degree of loss of ocular muscle balance, the fact that with one eye directed to an object the other readily turns away from the line of direction, is evidence of its liability to do so, and possibly of a habit of doing so, and double vision would result from it unless there were "neglect." There is no history of double vision, so that loss of ocular muscle balance in these cases with good vision in each eye indicates a liability to monocular vision and the loss of visual judgment essential to the pilot, together with the confidence which attends binocular vision.

HEALTH PROBLEMS IN THE CAMEROONS.

A REPORT for the year 1923 on the Cameroons Province, as administered by the Government of Nigeria under mandate, has been issued recently. For administrative purposes the territory is divided into four divisions—Bamenda, Mamfe, Buea with Kumba, and Victoria. Medical officers are stationed when available at these centres, with a native dispenser attached to each station. It may be said that each of these areas has its localised diseases and sanitary problems. These are but slightly affected by the ex-German hospital and sanitary arrangements, as the areas which have to be served by the stations are very extensive and the bulk of the people not advanced in questions of public health. The natural advantages of the country, it being for the most part of a mountainous nature with a relatively low temperature and good natural drainage and water-supply, counteract many of the evils which would otherwise flourish. In the forest area the soil is mainly clay and natural drainage poor. There is no attempt among the natives to instal any system of soil-disposal other than shallow pits scratched in the jungle close to the village, and with no regard to the source of drinking water, which is generally the nearest stream. It is understood that the "street-system" of villages throughout this area was the invention of the Germans for political reasons. A description of a typical village may be of service: A wide road, beaten flat by constant traffic, along which the town extends on either side, with as few breaks as possible to avoid separate walls and roofs in construction of the houses; the length of this street is limited only by the number of inhabitants, and forms a tunnel along which ventilation is only possible in the line of the street; the houses, low and dark, built flimsily of wattle and daub, with poorly-thatched roofs, lighted and ventilated, as a rule, only by a low door at front and back; no shade along the road, which may run for three miles through a village of this type; no trenching in front of or behind the houses and clearing of bush behind, so that all refuse and night soil is deposited a few yards from the dwelling. Cultivation is, as a rule, some distance from the village, so that the latter does not obtain the benefit of cleared and clean ground around it. Throughout the area a common source of income appears to be pig-breeding, these animals being neither fed nor penned, and drawing their food from jungle weeds and village garbage, with free access to either. The staple food of the people is the bulb of the "coco-yam" arum lily, which is a bulky and perishable article of small nutritive value. It is, however, fairly easy of cultivation. Around the food question revolves the vital and vicious circle of infant mortality. This depends on the well-being of the expectant mother, whose status appears to be low in the Cameroons, where all the manual labour of the farm and the house falls to her share. The people themselves are most anxious to seek treatment for their children, who come to the local dispensary in large numbers for medicine. On the other hand, the great majority of the people appear to be chronically underfed, and women overworked while young and neglected when old; the staple diet is inadequate for young children and the sick, who fall an easy prey to such complaints as ulcer, skin diseases, and intestinal parasites.

In Bamenda the country enjoys great assets in being well drained, with a temperate climate, and in possessing good food supplies. Large quantities of potatoes, introduced by the Germans, are grown by the natives for their own consumption. The hilly nature of the division has prevented the collection of villages along the main roads, and the settlements are farms where best suited for tillage. The water-supply is abundant and fairly free from contamination, being from mountain streams; and the general type of native sturdy and remarkably free from the chronic ailments that are seen in the forest area drained by the Cross River. The system of plantations around Victoria has hitherto employed large numbers of natives. These men and boys receive free medical treatment in hospitals, of which there is one on every plantation, with native dressers and attendants under the supervision of the medical officer. There have been no widespread epidemics and a remarkable absence of diseases attributable to the nature of the work. Serious cases can be transferred to hospitals at Buea or Victoria directly under the supervision of the medical officer.

Throughout the Cameroons the people have willingly submitted to vaccination and to medical instructions regarding isolation and treatment of infectious cases. A large number of cases of acute broncho-pneumonia occur at "the change of season," from the dry to the wet and vice versâ; the natives themselves attribute this to the effects of the influenza epidemic of 1918. It is probable that the effect of that epidemic will linger for some time, especially in the areas of overcrowding and heaviest rainfall. It is hoped to establish small dressing-stations of the nature of "aid-posts" under the direction of the medical officers and staffed by natives sufficiently trained to use simple remedies, who will advise the local inhabitants in sanitary measures. With improved communications it will assuredly be found that not only will the people be able to seek medical advice more freely, but that the freer exchange of commodities will raise the standârd of living and increase the food-supply, with improvement of the health of children. The fact that the birth-rate is low does not appear to be due to venereal disease, few cases of which are seen except in the stations, where they appear to be imported and do not go with a system of general prostitution. Promiscuous relations seem generally due to the inability of the man to pay the dower asked for a girl, who may thereupon decide to live with her "friend" for a period, depending on his whims or means. As such union gives her no claim on the children, the discarded woman has to find another refuge, having no independent means. The practice of holding the children of marriage in bond to the woman's parent until the whole dower is paid has also an adverse effect on the increase of families; and as the man in a position to afford several wives is usually elderly, there are few children in proportion born to him, with the added disadvantage that the offspring of the young and healthy women of a village may be nearly related by blood.

Report of the Director of Medical and Sanitary Services.

The Director's report gives such information as is available in regard to the incidence of certain tropical diseases. No case of sleeping sickness has yet been reported or come under observation in any of the areas where a medical officer is stationed, but tsetse-flies are known to be present, and it is probable that sleeping sickness occurs. Buea and Kumba report 25 cases of tuberculosis, with three deaths, and five cases are recorded in Mamfe. Victoria and Bamenda record no cases. There is no evidence as to what the death-rate may be and no statistics by which increase or decrease can be indicated. It is probably much more prevalent than is shown by the cases recorded. There were 36 cases of ankylostomiasis treated at Victoria, with ten deaths. Buea and Kumba record 37 admissions and two deaths and 48 out-patients, mainly plantation labourers. Mamfe records four cases; Bamenda none. At Victoria ol. chenopodium was employed in the treatment; in Buea, Kumba, and Mamfe thymol was given. Malaria appears more prevalent in Mamfe district and comparatively rare in Bamenda. It is common in Buea and Victoria. Enlarged spleens are commonly met with in children. Various salts of quinine have been used in treatment, mostly administered by the mouth, but sometimes by intra-muscular injection. Total cases, 1271 Africans, 12 Europeans. There was no case of plague. Filaria loa is reported to be very common in the region of the Mungo River in Victoria district, and also in the Mamfe district. The carrier *Chrysops silacea* is present in large numbers. Filaria bancrofti is reported from Mamfe. Total cases, filaria loa 98, filaria bancrofti 26. Leprosy does not appear to be very prevalent. Twenty cases came under observation and treatment in Mamfe, six in Victoria, six in Buea and Kumba, and three in Bamenda. Treatment was exclusively by moogrol, and improvement was noted. Total cases, 35; no deaths recorded. There was an epidemic of small-pox during the first six months of the year. Only a few of the cases occurred in Victoria, and by far the greater number were in Bamenda. Vaccination was freely carried out wherever possible. Total cases, 499; deaths, 102; vaccinations, 13,730, of which 7859 were successful. Syphilis is very prevalent in the southern part of the territory, in the plantations, and on the seaboard. Treatment was by novarsenobillon and by mercury and the iodides. Total cases, primary 91, secondary 93; congenital syphilis reported as fairly common. In Bamenda the medical officer comments on the incidence of recorded cases, being mainly females, occurring as rapid and extensive destruction of the palate without any previous signs of disease, and on an isolated case in which the patient had a healthy child of 10 months. The infection has probably been introduced by the trade routes and by three classes—viz., traders, labourers, and, in the northern part, African troops. Gonorrhœa is very prevalent in Victoria, Buea, and Mamfe, and to a less extent is found in Bamenda. No figures are given as to the number of cases treated. The sources of the spread of this disease are very similar to those of syphilis. As contributory causes of the spread of venereal diseases may be mentioned: (*a*) the high price of wives; (*b*) the transfer of wives from one purchaser to another owing to failure in paying the instalments of the purchase price; (*c*) desertion of wives brought into the country by traders and others; (*d*) unattached women traders; and (*e*) wandering prostitutes. It is hoped, when details come to hand of the Kenya treatment, to organise a campaign against syphilis and yaws. Registration of births and deaths is not compulsory, and no attempt is therefore made to get these statistics. The only registration that is carried out is that of non-native births and deaths. The following table shows the distribution of the population in the different divisions: Bamenda, 187,862; Victoria, 32,627; Mamfe, 61,078; Kumba, 66,155; total, 347,722.

COLMAN'S BATH MUSTARD.

WE are asked by Messrs. J. and J. Colman, of London and Norwich, to state that the bath mustard noticed in our issue of Nov. 1st, p. 944, is the product of their firm incorporating that of Messrs. Keen, Robinson and Co.

Erratum.—On p. 1086 of our last week's issue the death of Dr. Gersuny, of Vienna, was, by a typographic error stated as the death of Dr. Gersung.

F. W. W.—The annotation in THE LANCET of Sept. 23rd 1922, on Thermometric Scales in which it was mentioned that Gabriel Daniel Fahrenheit was elected a Fellow of the Royal Society is correct. It is true that in the Record of the Royal Society printed for circulation, it is stated that "in 1724 Gabriel Jean Fahrenheit was elected," but this appears to be a mistake. There is only one Fahrenheit in the list and his is the well-known name in connexion with the thermometer.

An Address

ON

SLEEP, SLEEPLESSNESS, AND SLEEPINESS.

Delivered before the Wimbledon and District Medical Society on Nov. 14th, 1924,

BY SIR FREDERICK MOTT, K.B.E., F.R.S.,
M.D. LOND., LL.D. EDIN.

SLEEP is the result of a series of events ending in a loss of consciousness and of voluntary movement. Normally, it begins with a voluntary action: we will to sleep and therefore go to bed—that we do every evening as a habit. But wherein does the act of going to sleep consist? We may wish to sleep and the wish may or may not be fulfilled. To say that by auto-suggestion we fall asleep means nothing.

Since sleep occupies a large part of our life it must be a physiological condition and one of great importance. In fact, it requires no great consideration to make it obvious that without the repetition of sleep healthy mental and bodily life is impossible. When we have been awake for a long time, that is we have exercised conscious mental processes, a condition comes on of weariness causing a desire for sleep, which becomes more and more urgent the longer the waking condition exists. We can voluntarily fight against the urgent desire for sleep to a certain degree and we can prevent ourselves falling asleep by use of artificial means—e.g., such stimulants as strong tea or coffee—but it will be at the expense of health. It is known that a person can live a few minutes without air, a few days without water, and a few weeks without food, but, although he can live several weeks without food, he cannot live a week without sleep. How do we know this? In China, where refined modes of death by torture have been long practised, death by prevention of sleep is one of the methods employed. The victims do not live more than five to seven days. But what is sleep? How does it come to pass? What processes take place in the body? We can subjectively characterise sleep by its most outstanding sign as a loss of consciousness and of voluntary movement. But that is only a superficial explanation of a negative nature which occurs to everyone. Sleep has been defined as: "A state of general marked quiescence of voluntary conscious (as well as of many involuntary unconscious) functions, alternating more or less regularly with periods of activity. In human sleep, when it is deep, the body lies quiet with the muscles relaxed, the pulse-rate lower than during the waking hours, and the respiration less frequent, but deep, while the person does not react to slight sensory stimuli. Intestinal peristalsis is diminished, secretion is less actively carried on; the pupils are contracted, and the brain is said to be anæmic. If the depth of sleep is measured by the noise necessary to waken the sleeper, it reaches its maximum within the first hour, and then diminishes at first rapidly then more slowly." Various theories have been put forward regarding the cause of sleep, but before giving a short account of these theories it will be desirable to turn our attention to the most obvious sign, the loss of consciousness.

SLEEP IN RELATION TO THE STREAM OF CONSCIOUSNESS.

In sleep there is a cessation or partial cessation in the flow of the stream of consciousness. Now what do I mean by the stream of consciousness? Flowing into it continuously by all the sensory avenues are stimuli producing a sensory-motor continuum. For every sensation tends to activation by muscular contraction, and reviviscence of past sensations by association percepts or images. We may group sensations into two great classes: External and Internal.

1. The *External* or *Exteroceptor* are (1) the distance receptors: sight, hearing, and smell; (2) contact receptors: taste, touch, pain, heat, and cold; (3) gravitation. These form together a subjective feeling continuum which may be termed exæsthesia.

2. *Interoceptor.*—Seeing that every sensation and every mental image or engram leads to a reflex activation which may be apparent or not according to the influence of positive or negative inhibition; to every sensation and image or perception there must, in consequence of this reflex motor action, result a corresponding kinæsthetic or postural excitation of afferent stimuli flowing along proprioceptive neuronic systems from muscle spindles, tendons, bones, and joints which, combined with associated labyrinthine sensations, form a sensory continuum which is intimately integrated with the exteroceptor sensory continuum on the one hand and the motor continuum on the other. This proprioceptive-labyrinthine continuum forms the less conscious but quite as important framework—the warp upon which the exteroceptor continuum, the woof, is woven. The two are inseparable, and the kinæsthetic and postural alterations in this sensory continuum, although playing apparently a subordinate part in the field of consciousness, really are most important in reviviscence of memory images or engrams. But under interoceptor stimuli we have to consider also those which form a continuum that minister to the vegetative functions or organic needs of the body. These are characterised by low intensity in normal conditions, and it is only when these stimuli rise above or below the normal intensity, or vary in their normal phasic rhythm or periodicity, that we become aware of their existence by their entry into the stream of consciousness. This state of feeling is termed cœnæsthesia.

The interoceptor and exteroceptor stimuli are integrated and constitute the subjective personality or ego. The sensation complexes or, if you like, excitation complexes, to use a synonym, form a continuous conscious and subconscious series which tends to reviviscence of a series of past experiences either in the form of concrete images or engrams or of abstract symbolic verbal images or engrams. The stream of consciousness is largely made up, in civilised people, of a continuous flow of engrams or images of verbal symbols forming concepts (silent language). Every fresh excitation exteroceptor or interoceptor arouses usually the equivalent word symbol. Abstract thought depending as it does upon language is only acquired by imitation. For, hearing no language we should speak no language, and in the uneducated deaf-mute, and to a less degree the primitive savage, the stream of consciousness is largely made up of a succession of sensation complexes and revived images or engrams of concrete objects and their associations in time and place.

The more highly cultured a man, the more does his mental furniture depend upon word symbols. It is an interesting question whether these word symbols constituting silent thought can be revived in the complete absence of exteroceptor stimuli. When we lie awake at night and external stimuli of sound and light are greatly diminished, so that the principal external tributaries to the stream of consciousness are almost dry, there often arises a flow of ideas; apparently the stream of consciousness is swollen and overfull with the flood of ideas. The lamp of attention is compelled to chase this succession of ideas made up of reminiscences of past experiences, or of creative imagination, which usually is of the nature of fantasy, more rarely of useful invention. This flow of ideas is a condition between sleeping and waking and is termed the hypnagogic state. There is partial consciousness; the inability to check this flow of ideas is due to failure of the highest inhibitory level of the cortex, owing to acquired or innate conditions leading to exhaustion as in neurasthenia, or the effects of a toxin as exemplified by the delirium of fever.

As a result of failure of function of this evolutionally and developmentally highest level there is a facilitation of associational ideation. This weakening or failure of inhibition prevents volition and choice of thought. It might be asked, would this stream of consciousness, which we may term endoæsthesia as distinctive from exoæsthesia and cœnæsthesia, flow in the complete absence of exteroceptor stimuli? Physiologists quote a case of Strumpell's of a woman who had lesions in the mid-brain and base of the brain, which deprived her of all sensibility except the sight of the left eye and hearing of the right ear. If the ear was plugged with wax and the eye closed the patient became unconscious and fell asleep.

We know also that consciousness depends upon a constant supply of arterial blood, for Mosso the physiologist made this experiment upon a man who in consequence of an injury to the skull had the brain exposed so that pulsation could be felt in it. When he compressed the carotid arteries the pulsation stopped, the man was told to count, and invariably when six seconds had elapsed the man lost consciousness. It was restored upon return of pulsation. There was dissociation of the ganglion cells of the cortex at their synapses—at least that seems the most probable explanation. This dissociation may be due to an alteration of surface tension at the multiple points of contact in consequence of deprivation of oxygen. Seeing that the lower subcortical centres can continue functioning a much longer time than six seconds when deprived of blood, it follows that the ganglion cells in the highest level of the cortex are more easily exhausted.

Physiological Experiments.

Many physiological experiments have been performed with the object of seeing the changes which take place in the brain during sleep. Arthur Durham trephined animals and placed a watch-glass in the aperture, and he found the blood in the vessels is diminished in amount and does not move so rapidly. He also noted that whatever increases the cerebral circulation tends to wakefulness. Dr. William Hammond and Dr. Silas Weir Mitchell repeated Durham's experiments and obtained the same results.

Dr. Angelo Mosso made observations upon three patients who had lost a portion of the cranial vault, and in whom there was a soft pulsating cicatrix. He found that during sleep there is a less amount of blood circulating in the brain, and at the same time an increased amount in the extremities. He showed further by the aid of the plethysmograph that there are frequent adjustments in the circulation during sleep. Thus a strong stimulus to the skin but not enough to waken the sleeper caused a contraction of the blood-vessels of the forearm, a general rise of blood pressure, and a determination of blood towards the brain; and, on the other hand, upon suddenly awakening the sleeper, there was a contraction of the vessels of the brain and an accelerated flow of blood through the hemispheres. The whole organism is so sensitive during sleep that a loud sound, light, a touch, or any moderate sensory impression modified the respiratory rhythm, determined a contraction of the vessels of the forearm, increased the blood pressure, caused an increased flow to the brain, and quickened the beats of the heart.

These experiments are in agreement with the observations of other physiologists, Donder, Kussmaul, Turner, and others. It is, therefore, probable that during sleep there is a partial anæmia of the brain, and that the blood is determined away to other organs and tissues, whilst at the same time this partial deprivation of blood may be modified by changes in the circulatory or respiratory mechanism caused by sensory impressions, or by sudden changes in position, or the state of response of the muscles. Examination of the retina during sleep shows a partial anæmia as compared with the waking state. Several other theories of sleep besides cortical anæmia have been put forward, one was that the pituitary gland pours out a secretion into the brain that causes sleep; another that it is a vegetative function of the body the highest controlling centre of which is in the hypothalamic region. This view will be considered later when dealing with lethargic encephalitis. Then there is the theory of Mathias Duval that sleep is due to dissociation of the cortical ganglion cells by retraction of the terminal gemmules of the dendrites or of the terminals of the axons by a process allied to amœboid movement.

But these physiological investigations, however, have never furnished a quite satisfactory explanation of the series of events which lead up to sleep, and there is much to be said in favour of a biological explanation. Throughout organic nature there has been an association between functional activity and sunlight. Throughout the animal kingdom oxidation processes are fundamental to tissue activity and discharge of energy under the influence of stimuli from the external world, resulting in the production of fatigue products and a degree of exhaustion of potential energy which is capable of recuperation by rest. The normal conditions of sunlight and oxidation processes have been habitually juxtaposed in the evolution of the animal kingdom. While at the end of the day till dawn there is a lowering of oxidation processes in response to absence of environmental stimuli, there is a storage of potential energy. The fall in potential energy at the end of the day has in the long procession of ages been associated with a desire for sleep. This manifests itself especially by an inability to keep the eyes open, and there is a feeling of fatigue in the elevators of the eyelids which tend continually to droop and shut out the light. R. Semon has shown that habit and memory are based upon the same fundamental principles. When two conditions are juxtaposed in time and place either one will revive the other. Thus, if we represent C as sleep, A as night, B fall of potential energy and fatigue, sleep is induced habitually by either A or B. Probably B is the more important factor in determining the desire for sleep. Consequently, when persons have to work by night and sleep in the daytime, they experience a fall of potential energy at the dawn and a desire for sleep in the day.

According to Claparide we must look upon sleepiness as occurring not because there is an actual exhaustion of the brain, but in order that it may not be reduced to that extremity. Every normal child, like the adult but in a less degree, possesses a store of nervous and muscular energy over and above that which it requires in ordinary conditions of life; and this statement is borne out by all the known facts, experimental and otherwise, concerning mental and bodily fatigue. The reserve energy certainly varies in amount in different individuals; it is intended only for emergencies and should not be habitually drawn upon. The sense of fatigue and the desire for sleep may be regarded as the protective and the instinctive guardians of this reserve of nervous energy. Both give warning that the reserve is about to be drawn upon, and if the warning is continually allowed to pass unheeded, exhaustion of the highest inhibitory function of the brain cortex ensues, and associative memory, thus left unchecked, permits a continuous flow of ideas, resulting in mental excitement and sleeplessness. A vicious circle tends thus to become installed which, if not broken, leads to bankruptcy of nervous potential, with permanent mental irritability and lack of mental energy.

THE ADVENT OF SLEEP.

Drowsiness and somnolence are induced by many external conditions of the body even during the daytime, for example, a heavy meal at mid-day with alcoholic beverages. It is a mistake to think that alcohol acts directly as a stimulant—its action is narcotic, but it produces an apparent stimulating effect by its narcotising action on the highest level of the brain, viz., inhibitory control, and if the environmental conditions are not acting as an exciting cause, loosening association and flow of ideas, then alcohol acts as a narcotic and produced somnolence, drowsiness, and sleep. Even a heavy meal with alcohol tends to drowsiness, blood is derived away from the brain. A hot, stuffy atmosphere in which there is excess of CO_2 assisted by an uninteresting discourse or lecture delivered with a monotonous tone and rhythm induces somnolence. One tries to keep one's eyes open and the head up and to attend, but in spite of conscious effort the eyelids droop or close, the jaw drops, and the head falls forward on the chest or lateral-wards or backwards. We may become partially conscious, or partly conscious if something happens to vary the monotonous drone, and light up again the lamp of attention and awareness. Is this sleep a sort of protective vital reaction, the first signs of which are those connected with the tonic contraction of head and eye muscles due to failure of proprioceptive kinæsthetic and postural stimuli that tell of spatial relation regarding our own position in the three dimensions of space, and relation to objects in the world around? The drooping of the eyelid and closure to the light stimulus, combined with relaxation of the head and neck muscles which extend to the rest of the skeletal muscles, is probably due to the lowering of the labyrinthine stimuli which tell us of the position of the head in the three dimensions of space, and also have a marked influence upon the tone of all the muscles of the body as well as the head and neck. Now, the eye muscles and the head and neck muscles are associated in their action and the successive series of proprioceptive postural and kinæsthetic stimuli arising from them, lead to our consciousness of environmental happenings in the three dimensions of space. The upward and downward movements of the eyes are related to vertical space, the lateral movements to horizontal space, and convergence, associated with accommodation by the ciliary muscle, to depth. There is an intimate association of the ocular nuclei and the vestibular nuclei by the posterior longitudinal bundle. Failure of the proprioceptive stimuli from the head and eye muscles would produce a loss of the principal element of consciousness—viz., the spatial relations of the individual to the world around. If, then, there is a part of the brain which has control over this elemental function of consciousness, common to all animals, it will be by its inhibitory influence, primarily on the tonus of muscles of the head and neck and eyes. The proprioceptive and labyrinthine stimuli of sufficient intensity to maintain the eyes open, and the lower jaw and head up against the force of gravity, would eliminate the principal tributary to the stream of consciousness. The cessation of this tributary to the stream of consciousness may be regarded as a device of Nature to put the body in the best position for unconscious quiet of the mind and bodily rest, viz., the prone position when other important sources of anti-gravity stimulus are removed. Sherrington has shown in the Linacre Lecture, "Problems of Muscular Receptivity," that the stimulus which is the source of reflex standing is one acting on the receptors of those limb muscles which are themselves executants of posture. They are those which keep the head and neck from sinking, the trunk straightened, and the spine supported, the limbs from yielding and folding under the superimposed weight of the body. He showed in the decerebrate animal the postural act of standing can take place with the skin nerves divided. Now, in the "knock-out blow" cn the point of the chin the man falls down and is unable to rise in the allotted ten seconds, and he is unconscious, or only semi-conscious, for seconds. What has happened to cause this annihilation of the reflex standing postural condition? Shock to the semicircular canals transmitted through the articulations of the lower and upper jaw, causing a loss of tonus in all the muscles of the body. Dr. Golla long ago showed that a person placed in the rotating chair, owing to labyrinthine disturbances loses his knowledge of spatial relations and may even fall off the chair unconscious. These neuronic systems connected with proprioceptive ocular and labyrinthine functions exist in the mesencephalon and pons where inflammatory changes are especially met with in encephalitis. May not the lethargic condition met with in this disease be due to their failure to function properly?

During natural sleep, however, the whole central nervous system is resting, indeed, the vital biochemical katabolic processes of the whole body are lowered, for there is less oxygen used, less carbonic acid produced, and less heat. Goltz's dog that lived for a year, after the whole of his cerebral cortex had been removed, slept. There are various degrees and varieties of unconsciousness; they are: (1) light sleep; (2) sleep disturbed by dreams; (3) sound sleep —but not so sound that the individual cannot be aroused; (4) coma, a deep sleep from which the patient cannot be aroused; but I do not intend to say anything about this last condition.

DREAMS.

Sleep disturbed by dreams is unrefreshing, especially if the dreams are terrifying. Kant said:—

> "I rather suppose that ideas in sleep may be clearer and broader than even the clearest in the waking state, for man at such times is not sensible of his body. When he wakes up his body is not associated with the ideas of sleep, so that it cannot be a means of recalling this former state of thought to consciousness in such a way as to make it appear to belong to one and the same person."

So that a neurasthenic who says that he does not dream, yet wakes up unrefreshed by sleep, probably has been dreaming and actively using up neural energy. Dreaming can be accounted for in many instances by external excitation, as the following experiments related by Verwoorn show: a man who was asleep dreamt he heard the firing of guns when small pebbles were thrown against the window-pane. Another, who, when asleep, was sprinkled with a few drops of water, dreamt of storm and rain. Again, another who had placed under his nose a perfume that he had brought from Egypt, dreamt that he was in the bazaar at Cairo and entered the shop where he bought the perfume. When I had fever (? typhoid or influenza) I had two dreams which illustrate this peripheral excitation in the production of terrifying dreams with a great magnification of the effect of the excitation, probably due to the loss of inhibition through the toxin on the highest level of the cortex. I had a pretty marked pharyngeal and nasal catarrh. I dreamt that my nose was swelling inordinately until it became an elephant's trunk, and then in my delirium I saw hundreds of trunks. Another dream was even more terrifying, and owed its origin to a peripheral cause. The country practitioner who attended me gave me a big dose of antifebrin to bring down the temperature; it fell rapidly from over 104° to subnormal. I dreamt I was a prone marble statue undergoing liquefaction. I awoke cold and bathed in perspiration, and for some few moments I hardly realised I was alive and I was unable to move or shout for help. Everyone knows how an indigestible supper will produce nightmare. Is it not told in the "Ingoldsby Legends" about the young man "who had something on his chest, Mother," and with the conclusion it was "that confounded cucumber I've eat and can't digest, Mother." The war taught us how true was the philosophy of Lucretius, who, in "De Rerum Natura" says:—

> "And generally, to whatever pursuit a man is closely tied down and strongly attached, on whatever subject we have previously much dwelt, the mind having been put to a more than usual strain in it; during sleep we for the most part fancy that we are engaged in the same; lawyers think that they plead causes and even draw up covenants of sale, generals that they fight and engage in battle, sailors that they wage and carry on war with the winds. We think that we pursue our task and consign it when discovered to writings in our own native tongue. So all other arts and pursuits are seen for the most part during sleep to occupy and mock the minds of men."

Lucretius next calls attention to the evidence of dreams in animals:—

> "And often during soft repose the dogs of hunters do yet all at once throw about their legs and suddenly utter cries and repeatedly sniff the air with their nostrils as though they had found and were on the tracks of wild beasts."

In another passage Lucretius says :—

> " Again the minds of men which pursue great aims under *great emotions* often during sleep pursue and carry on the same in like manner ; kings take by storm, are taken, join battle, raise a loud cry as if stabbed on the spot."

In Shakespeare there are two passages which may have had their source of inspiration in the " De Rerum Natura " of Lucretius—viz., the speech regarding Queen Mab by Mercutio and that of Lady Percy to Hotspur. As Lucretius says, a man dreams of whatever pursuit he is closely tied down to ; during the Great War the soldier dreamt that he was in the trenches fighting Germans, or he heard and saw the shells bursting, shouted in his sleep, and awoke with a start. How truly Shakespeare describes this when he says :

> " Sometimes she [Queen Mab] driveth o'er a soldier's neck,
> And then dreams he of cutting foreign throats,
> Of breaches, ambuscadoes, Spanish blades,
> Of healths five fathoms deep ; and then anon
> Drums in his ear ; at which he starts and wakes,
> And, being thus frighted, swears a prayer or two
> And sleeps again . . . . . . "

(In the quarto 1597 edition the text had " mines and countermines " instead of " Spanish blades," which seems singularly appropriate just now.)

In Lady Percy's speech to Hotspur there is the following passage :—

> " Why hast thou lost the fresh blood in thy cheeks ;
> And given my treasures and my rights of thee[1]
> To thick-eyed musing and cursed melancholy ?
> In thy faint slumbers I by thee have watch'd
> And heard thee murmur tales of iron wars :
> Speak terms of manage to thy bounding steed,
> Cry, ' Courage ! to the field ! ' And then hast talk'd
> Of sallies and retires ; of trenches, tents."

My experience accorded with this statement of Mr. Curdy. Numbers of officers and men admitted to the Neurological Clearing Hospital suffering with anxiety neuroses, contemplation and fear, had lost sexual desire.

The war also taught us that sleep disturbed by terrifying dreams was associated with disorder of the endocrine system of glands, manifested by signs of Graves's disease and high blood pressure, which disappeared when the terrifying dreams ceased. Freud has emphasised the importance of the analysis of dreams in ascertaining the existence of a repressed fear complex. According to my war experience too much stress was laid by Freud and his followers on fear complexes related to sex functions, although the great importance of these must be recognised and cannot be disregarded in relation to causation of the psychoneuroses, but it is not my intention to discuss this question further.

LETHARGY CAUSED BY DISEASE.

The cause of the drowsy condition, somnolence, and lethargy met with in certain diseases of the brain —e.g., lethargic encephalitis, sleeping sickness due to trypanosomiasis—has aroused a new interest in the question whether sleep is not a vegetative function which has a functional representation in the central nervous system in a situation where the regulation of metabolism exists. In sleeping sickness there is a perivascular lymphocyte infiltration affecting not only the cortex but especially the medulla, mid-brain, and basal ganglia. I always thought that the lethargy and the weakness and ready fatigability by which a patient would become drowsy and somnolent after a few minutes' conversation was due to a failure of oxygen-supply to the cortex by the stasis of blood and cerebro-spinal fluid. Whereas, in lethargic encephalitis it is the mesencephalon, the pons, medulla, and the basal ganglia which are especially affected, in general paresis, when the cortex, and not these structures, is involved, you do not get this lethargic condition. I have already suggested a reason for sleepiness by lesions of the pons and mid-brain interfering with ocular proprioceptive and labyrinthine stimuli, which are essential for consciousness of spatial relations of the world around.

Various authors have put forward other views regarding the lethargy of encephalitis. For example, Buzzard thought it might be due to intraventricular pressure of accumulated cerebro-spinal fluid owing to the œdema of the mesencephalon interfering with the flow of fluid from the lateral ventricles through the aqueduct of Sylvius ; interruption of sensory impulses to the thalamus (Gayet) ; disturbance of the muscle tonus (Marinesco), and to some extent also of endocrine secretion ; but against this there is no evidence of any affection of thyroid or suprarenal glands. Whether the pituitary is affected or not I do not know. Van Economo postulates the theory of a sleep centre in the neighbourhood of the oculo-motor nuclei.

According to Prof. Wimmer the symptoms belonging to the " hypophysis syndrome," such as adiposity or cachexia, polyuria, polydipsia, glycosuria, and morbid changes in the sexual organs and in their functions, constitute the main features of vegetative disturbances in chronic encephalitis. But a number of clinico-anatomical and experimental investigations have, however, unsettled our views as to these hypophysis syndromes. For the experiments of Roussy and Camus have shown that in the basal grey matter of the brain just above the hypophysis—hypothalamus, the tuber cinereum, and infundibulum—there is a series of vegetative centres (cerebral control of sympathetic), and a lesion here, although the pituitary body is not touched, may give rise to hypophyseal symptoms— viz., an adiposo-genital syndrome, polysarcia, atrophy of testes, apathy, somnolence, and occasionally diabetes insipidus.

INSOMNIA.

Insomnia is a troublesome symptom occurring in most acute and chronic diseases or illnesses. It may be due to pain, to irritating cough, fever, cerebral excitement arising from toxic delirium, organic brain disease, anxiety neuroses, psychoneuroses, and psychoses. A prevalent form of insomnia for which one is frequently consulted, and to which I will particularly call attention, is a condition found especially in modern urban life and may almost be regarded in itself as a malady. It is a powerful factor or contributory cause in the production of neurasthenia and of a nervous breakdown usually said to be due to overwork, but it is not so much overwork as anxiety, worry, and mental conflict, or a repressed fear complex, the nature of which may be revealed to the sympathetic physician who is able to gain their confidence.

Charles Darwin in his " Life and Letters " refers to his father, who was a physician at Shrewsbury, as the wisest man he ever knew. He was known as the " father confessor," for numbers of patients came to him suffering from what they believed to be bodily diseases but which were really due to fears, which he was able, by a sympathetic understanding and wisdom, to dispel from their minds or help them to fight against. I always ask my patients : " Have you any financial worry ? Have you any domestic worry ? Have you any cause of anxiety ? " And I explain to them that it is worry and not overwork in most cases that causes insomnia, and that as soon as sleeplessness becomes habitual trifling troubles are magnified and cause depression. Where there is a latent innate potential cause of the psychosis these conditions of worry and anxiety producing insomnia are apt to set up delusions of a persecutory nature. Hence the necessity of taking early measures to prevent habitual insomnia, even if one has to start with drugs. But the great and important matter is to endeavour to restore as soon as possible the habit of normal sleep. To do this you have to find out what the daily life of your patient has been, what are his real anxieties, and how they can be alleviated. He may suffer with dreams which may be a clue to the fear complex which is the hidden cause of his psychoneurosis. What should we do for such a neurasthenic patient? The first thing is to make a thorough physical examination. For so many of these patients have functional derangements of a distressful nature which lead them to believe they are suffering from a bodily disease—for example, they believe they are impotent; they have heart disease; gastric disease; or an organic disease of the nervous system; or that they will become insane. They liken their symptoms to some friend who has recently died of tumour of the brain or general paralysis. Be cheerful and look cheerful, and assure them that, having made a careful physical examination, you are sure that there is no organic disease and no probability of it arising. These neurasthenic people, men and women, are eminently open to suggestion, and you will inspire hope by being cheerful to them. They complain of weariness, inability to concentrate, failure of memory, of being easily fatigued; they suffer with indigestion and constipation. Explain to them that these are only signs of lack of nervous energy flowing to the voluntary and involuntary muscles, due partly to the insomnia, and that with the restoration of natural sleep habit all these signs and symptoms which have alarmed them will disappear. Inquire into their domestic, financial, and occupational capacities to carry out your suggestions, for you will only increase anxieties if you propose impossible conditions of treatment. Sunlight, fresh air, and occupation with interest in the open air—for example, golf—should be recommended: the value of this game to the business and professional man is that he cannot introspect, he must make a continual series of fresh mental adjustments; he is taking moderate exercise in the open air, takes his own time and does as much or as little as he feels inclined. Walking, motoring, and fishing are not so good because they do not break the train of anxious thought. I am often asked "Ought I to sleep after lunch?"—I say sleep is a protective instinct, and to yield to the desire is natural even if it comes at an unnatural time. Attention should be directed also to all those conditions of comfort and quiet which facilitate sleep and which you all from experience know.

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[1] Mr. Curdy, in discussing the Anxiety Neuroses of Soldiers, said : " The man who is visited by his wife or his sweetheart is a disappointment both to himself and his visitor in that it is impossible for him to give any proof of his affection. This finds expression in a manifestly obvious way through the symptoms of impotence, which, is so far as I have been able to learn, universally present in the anxiety state, either as such, or in the form of its equivalent lack of erotic feeling."—" War Neuroses," Psychiatric Bulletin of New York, July, 1917.

TREATMENT BY DRUGS.

Pain is best relieved by morphine, either hypodermically combined with atropine, or by mouth. In some cases morphia combined with hyoscine (¼ gr. of the former to 1/200th or 1/100th gr. of the latter); for the lightning pains of tabes, veronal and aspirin may be given, but pyramidon (5 to 8 gr.) is more effective. For sleeplessness due to toothache and trigeminal neuralgia, I have found useful croton-chloral-hydrate (5 to 10 gr.), with tincture of gelsemium (♏5 to 15), repeated in four hours if no relief. Veramon 6–15 gr., according to the severity of the pain, has been recently recommended.

Hypnotics employed for insomnia are numerous.

"*General Requirements for Insomnia.*—1. They shall produce sleep of sufficient depth without secondary action, especially on respiration and circulation. Those which contain Cl are more depressant on respiration or circulation. 2. Sleep shall be quickly induced—e.g., within half an hour. This depends upon the ease with which they are dissolved and absorbed. Tabloids or tablets should always be crushed—otherwise give powder in cachets. 3. The action should be of sufficient duration—viz., six to eight hours. 4. Rapid and complete excretion or conversion into a harmless product; otherwise there will be a tendency to accumulative effects. 5. Prolonged use of same drug should be avoided for two reasons: first, because of cumulative effect and tolerance requiring increased dosage; second, habit formation."[2]

If sleeplessness has its origin in mental strain and unrest, anxiety, mental conflict, or psychic causes, chloral hydrate or some other hypnotic of the fatty series—viz., paraldehyde, chloretone, chloralamide, or the coal-tar derivatives—e.g., sulphonal, trional, or one of the barbituric acid series: veronal, dial, luminal, bromural, dormiol, adalin may be employed. The great advantage these drugs have over morphine is they do not cause constipation, and the danger of becoming habituated to them is less. The action of chloral hydrate is similar to chloroform but more lasting. Sleep is quiet and deep, often accompanied by dreams: dose 10 to 20 gr. This drug is often combined with an equal quantity of a bromide salt, and in mental cases with equal quantity of bromide together with cannabis indica and hyoscyamine. In cases where there is an idiosyncrasy, chloral is liable to produce urticaria, erythema, and other skin eruptions. For ordinary sleeplessness chloral and veronal, or its sodium salt medinal, are frequently used as good remedies in the delirium of fever—for example, typhoid, where, owing to its action on the heart, chloral had better not be used, nor in cases where heart and lung diseases exist. Chloralamide, 1·5 g. equal 1 gr. of chloral, is a useful drug. Adalin is a hypnotic of moderate strength, often acting well; it has the advantage of being quickly eliminated. Bromural is a hypnotic and sedative, weak in action, but has very little toxicity; 5-10 gr. in tablets is the dose. Paraldehyde, if it were not for its unpleasant taste and the odour of the breath afterwards would be more extensively used. It is safer than chloral because there is no action on the heart or respiration; 1–2 drachms or more may be given in cases of typhoid fever and cardiac diseases. It is especially useful in mental diseases where prolonged use of hypnotics may be necessary. It may be given with 5–10 gr. of veronal, medinal, or trional to prolong the sleep. Dormiol is a combination of amylene and chloral. It is recommended on account of its rapid action and is in most cases reliable. It is given in capsules 8–15 gr. Veronal, diethyl-barbituric acid, is apt to be cumulative like sulphonal, and should not be given for more than a week. Luminal belongs to the barbituric acid series, but the ethyl group C_2H_5 is replaced by C_6H_5, phenyl ethyl. It is especially suitable for cases of sleeplessness where the disease takes the form of night attacks. It is much used for epilepsy, ½ gr. to 2 gr. twice or three times a day. Dial, diallyl barbituric acid, is used in many of the mental hospitals and I have found it useful as a hypnotic. But like other drugs of this series it is not well to continue its use for long: the dose is one tablet of 1½ gr. to one and a half to two tablets. Most of these hypnotics in powder or tablet form should be given in hot milk or some other hot fluid half an hour before bedtime. But it should always be our main endeavour to restore the habit of normal sleep, by the ascertainment of the causes of sleeplessness and removal thereof.

DAVID LEWIS EPILEPTIC COLONY.—At the annual meeting, held in Manchester, Dr. Alan McDougall, the director of the colony, emphasised the importance and success of the early treatment of epilepsy. In the congenial surroundings of the colony a considerable number of chronic sufferers had ceased to have fits, and had returned to the outside world. If patients entered at an earlier stage of their illnesses, he said, the results would be better still. Many children who were in the residential school of the colony ceased to have fits, and were now back at their homes and earning their own livings. In his own home among his healthy brothers an epileptic child usually became peculiar, spoilt, and unpleasing, and remained uneducated. At a colony the children were not made to think themselves invalids or abnormal. It seemed probable that the determining factor in the beginning of epilepsy in a child was often some untraced mental irritation in the child's circumstances. The mere removal of the child to the congenial atmosphere of a residential epileptic school apparently was often enough to end the trouble, provided that the delay had not been allowed to set up the fit habit. The first fit should be the indication for a child's immediate removal. In view of the importance of treatment of epilepsy in the early stage of the disease the committee have decided to proceed with the erection of a new home for 32 boys—the provisional estimate of the cost being £18,000.

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[2] Text-book of Pharmacology and Therapeutics, Poulsson, edited by W. E. Dixon.

THE USE OF SUCTION IN SURGERY.

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UPON many occasions in the history of surgery the use of various contrivances for producing suction has been advocated and tried, but with the exception of one or two important instances such methods have rapidly been abandoned and the apparatus discarded. These exceptions are the suction apparatus known as an aspirator used in dealing with pleural effusions; the syringes used for aspirating abscess cavities and withdrawing blood and other fluids for investigation; and the method of producing passive congestion introduced by Bier. To these may also be added the use of Cathcart's apparatus for draining the bladder after prostatectomy, although this has now been largely superseded by the use of the Irving "tortoise." Of the addition of such apparatus to the armamentaria of the surgeon, or of their use in the ordinary technique of general surgery, there is, however, little sign. The reasons for this apparent indifference to an innovation which is not without its advantages are probably not far to seek. Most of the appliances so far invented have been rather clumsy and, although perhaps satisfactory for particular work, peculiarly unsuitable for general surgery.

A more weighty reason, however, is the fact that they have been regarded as cumbersome instruments, perhaps rendering the surgeon's work a little more easy, but quite devoid of any higher value. Indeed, up to the present suction in general surgery has been condemned as only a complicated substitute for an ordinary swab. There has been, besides, the natural antipathy to adding to the already overburdened instrument cabinet. Complexity, however, is in itself of no real disadvantage if the results obtained are satisfactory. The modern operating cystoscope and the Albee electro-operative bone saw are sufficient instances of this. The use of suction does unfortunately imply additional apparatus, but if it can be proved that it is of convenience to the surgeon, and, what is much more important, that it is a real advance in technique intimately affecting results, then this is of little importance.

Fields of Usefulness for the Suction Apparatus.

The essential characters of a suitable apparatus will be considered later, but at first it must be questioned whether it supplies an actual need. As a type case the perforation of a duodenal or gastric ulcer may be taken. Here the aim of the surgeon may be summed up as follows: The perforation must be closed, the abdominal cavity emptied as thoroughly as possible of its contents, and, since the patient is often profoundly shocked, the whole must be performed as rapidly as is consistent with thoroughness. The author has found during the year the apparatus has been on trial that its use not only shortens the time taken considerably, but that the peritoneal cavity is emptied more completely than by any other method, with the exception perhaps of massive lavage, which for many good reasons has become almost obsolete. In such cases, therefore, the advantages of suction are established, but they by no means end there. The modern tendency of abdominal surgery is to avoid drainage except in cases of overwhelming infection, and to rely very largely upon the general resisting powers of the peritoneum. The success which attends this method of treatment depends upon two factors. In the first place as little residual infective material must be left behind as possible, and in the second the endothelial lining of the peritoneum must be preserved intact over the greatest possible area. Both of these desiderata are much more nearly achieved when suction is employed than by the common method of swabbing. Suckers can be designed which damage the endothelial lining scarcely at all, and at the same time rapidly empty the cavity of every drop of contents. Where large portions of solid food have escaped this statement may not be strictly true, but such cases are few and far between in these days of early diagnosis, and even then suction will be more effective than other methods. Surgical instinct shudders at seeing a large cotton swab pushed into the pelvis, twisted around, and then withdrawn, bringing with it portions of detached endothelium and much valuable lymph.

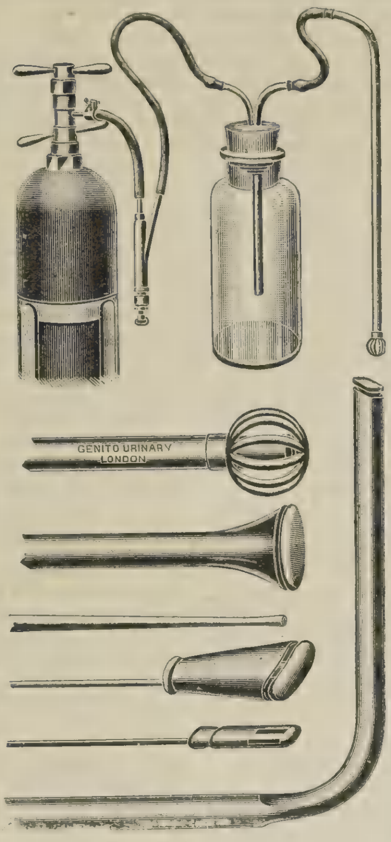
The removal of and damage to endothelium not only diminish the immediate resisting powers of the peritoneum, but also lead to the formation of adhesions which may ultimately cause serious symptoms.

Experiments which have been recently performed in America and elsewhere upon the formation of adhesions prove conclusively that damage to the endothelial coat is the most important point in their production, and that conversely as long as the endothelial coat remains reasonably intact there is little fear of their formation. This explains the failure of many of the methods of preventing adhesions, for where the endothelial coat is already lost over large areas nothing appears to be of any avail, while some of the materials used—i.e., ether—were in themselves capable of destroying this coat. In actual surgical practice prolonged and chronic infections, and the irritation caused by foreign bodies (the chief of these being drainage-tubes) are the common causes. Inasmuch as suction reduces the number of cases in which drainage is necessary, leaves the endothelial lining intact, and empties the abdomen of foreign and infective material most thoroughly, it is hoped that its use will diminish the mortality and very largely prevent serious sequelæ.

In other realms of abdominal surgery it will be found equally useful. In the case of rupture of an ectopic gestation the more fluid portions of the blood can be easily removed without disturbing the general abdominal contents; the method of removing clot by suction will be again referred to when the apparatus is described. Within the last year it has been suggested that in such cases the blood should be collected and after suitable treatment returned to the patient by infusion. The author has not had a case in which he thought this advisable, but by the use of a suction apparatus its performance could be carried out in a perfectly aseptic manner without exposure even to air. In cases of suppuration about the appendix or in the pelvis the pus can be aspirated in the early stages of the operation without fear of spreading infection. Its use is not limited, however, to emergency or infected conditions; in operations upon the gall-bladder and stomach there is frequently some leakage of bile and oozing of blood over the field of exposure. A small sucker can be attached to the blade of a retractor down to the kidney pouch which, without disturbance of the wound, will periodically remove all this. In bladder operations, too, it can be similarly attached, and will keep the field clear of urine and blood, thus reducing the necessity of harmful swabbing to a minimum. As another instance, if it be thought advisable the chest can be rapidly emptied completely of pus after resection of a rib without disturbing or distressing the patient. In bone and joint surgery, indeed in any case where there is oozing or exudation and it is essential to keep the field dry with a minimum of trauma, the same applies. The special case of surgery in and about the mouth must be dealt with in greater detail.

The introduction of insufflation anæsthesia has relieved the surgeon's anxiety very considerably in such cases, but it is not always available, and in any case has no effect on the collection of blood in the mouth except to prevent it from entering the larynx. If a flexible sucker, such as is described later, be introduced into the naso-pharynx through the nose the whole throat can be kept dry by its occasional use with no inconvenience to the surgeon whatsoever. Every surgeon who operates upon cleft palates at all frequently knows that the bugbear of these operations is the constant interruption for swabbing away blood, and that these repeated swabbings damage the freshly cut edges of the palate to such a degree that I have known a very experienced operator attribute a failure of union to this cause alone. The advantages to be derived from the use of a suction apparatus in these operations must be seen to be believed.

The author has had the opportunity of performing cleft palate operations for several years, and has no hesitation in saying that since the introduction of suction the results obtained have been very much improved. In suitable cases the whole operation can be conducted without the use of a single swab, and if it should be necessary they are used merely to keep up pressure and need not come into contact with the freshened surfaces. The operation proceeds rapidly without interruptions, and there is no risk of blood being either inspired or swallowed. Incidentally, the apparatus has also been found of value in cases of post-anæsthetic vomiting, to empty the pharynx quickly without producing further gagging. In cerebral surgery, too, by the use of specially designed suckers the field can be kept free of blood with a facility unknown when other methods are employed, and the surgeon's fixity of vision is not interfered with, a point of great importance in many rather delicate operations.



The illustration shows the pump as attached to the gas cylinder, together with collecting bottle and sucker. The different types of sucker heads are shown enlarged below.

Essential Characters of a Suitable Suction Apparatus.

From a consideration of the above it will be seen that there can be no doubt as to the surgical value of the method, and we must now return to a consideration of the essential characters of a suitable apparatus. These can be summed up by saying that it must, as far as is possible, be universally useful for all types of cases and at any place, so that it must not only be easily portable but the power should be obtainable without difficulty, and the number of sucker heads, at least for general purposes, should be reduced to a minimum. An apparatus of the type of Potain's aspirator worked by a hand pump, while satisfactory for its special purpose, would obviously be of little use for the continuous suction required in general surgery, and any hand or foot operated pumps, if of a size suitable for continuous suction, would be clumsy to handle and not easily portable. The most popular suction pump at the present time is a reciprocating or rotary one worked from a small electric motor. These are certainly very efficient, but are only available where the correct type of current is laid on, the weight of the accumulators or transformers and resistances otherwise necessary being prohibitive.

This is really, however, not a very great disadvantage, since there are few places nowadays without an electric supply. A much greater disadvantage is the fact that the apparatus is of considerable size and weight, and in addition all those at present designed run with an excessive amount of noise and vibration. The vacuum produced by these pumps is comparatively high, and tends to rise when there is any obstruction to the sucker head. This at first sight may appear to be of advantage, but when it is considered that important structures may be drawn into the head with excessive pressures and so damaged, it will be recognised that an apparatus producing a strictly limited but nevertheless sufficient pressure would be more valuable.

Description of the Apparatus.

It was for these various reasons that the author devised a suction pump on a totally different principle, for which the following advantages are claimed. It is very small, weighing together with attachments but six ounces, and can be carried in the operating bag with the actual suckers themselves. Worked from cylinders of compressed gas, either oxygen, nitrous oxide, or air, it is vibrationless and quiet in action.

The question of convenient power was a difficult one. Something after the nature of the ordinary filter pump working off the water main would certainly have served the purpose, but it is rare for such water pressure to be obtainable in the actual operating theatre, and to have led the suction tube from the adjoining sterilising room would have necessitated a great length of inconvenient tubing and considerable loss of power. In addition, its use in the rooms of a private house would be precluded in most instances. An oxygen cylinder is, however, an essential part of the equipment of every operating theatre, whether in hospital or nursing home, and in the rare cases where it is not likely to be available there is little difficulty in transporting a small cylinder for the purpose. In cases of emergency it is well to remember that these are stocked by most chemists, or one of the anæsthetist's nitrous-oxide cylinders can be used. Where cylinders of compressed air are available they will, of course, be used in preference, but at present compressed oxygen is not only easier to obtain but, strange to say, cheaper. The actual power is obtained from the velocity and expansion of the issuing gas. This is led via a short piece of pressure tubing to a small nozzle situated just behind the narrowed orifice of a small cylindrical chamber, both the internal and external leads to the orifice being parabolic in contour.

Partially blocking the orifice is an obturator also parabolic in shape. The issuing gas therefore, by its momentum and expansion, creates a negative pressure in the chamber, a certain degree of turbulence being produced at the orifice. From the chamber a side tube is connected to the collecting vessel and via this to the sucker itself. It will be seen that there is a maximum vacuum produced which is constant for fixed size of nozzle and orifice, position of obturator and pressure of issuing gas; and that this vacuum cannot be exceeded even although the sucker be completely blocked as long as these factors remain constant. This is a unique feature of a pump of this type and acts as a kind of safety-valve, automatic in its action, preventing important structures being damaged by working their way into the end of the sucker. In an experimental model various sizes of nozzles were tried, and it was found that the smallest nozzle would give a negative pressure of nearly 300 mm. of mercury, while at the same time being sufficiently economical of gas. Considerably greater negative pressures than this can be obtained by the use of larger nozzles with some loss in economy, but in practice it will be found that the vacuum given above, which equals between six and seven pounds to the square inch, is ample for all ordinary purposes. In the standard model the nozzle and the obturator are both adjustable. The general efficiency of the pump is extremely sensitive to slight variations in the positions of these, and for this reason, if the pump is to be used on fixed pressures, it is advised that a model with fixed nozzle and obturator be obtained. In other cases the maximum position can be obtained by trial, a negative pressure mercury or other manometer being attached to the side tube, the nozzle and obturator can then be fixed in position by the lock nuts provided. Once adjusted, there being no moving parts, no further attention is required. If by an oversight the collecting bottle should become so full that its contents are sucked over into the pump itself, the latter may be easily cleaned by unscrewing the whole of the front end which includes the obturator when the interior is well exposed. If desired, nozzles with varying apertures from 0·5 mm. to 1·3 mm. can be obtained; the larger sizes are rarely required, however, and the standard nozzle is 0·5 mm.

It should be mentioned here that although this pump bears a general resemblance to the well-known boiler injector, the principle underlying its action is essentially different. In the steam injector the negative pressure is obtained by the sudden condensation of the issuing jet of steam as it meets the incoming water. Such a pump will work at comparatively low pressures and will pump against a pressure greater than its own. In the present pump no condensation occurs, the suction being obtained solely by the momentum of the expanding gas. Very high pressures, in the region of 100 atmospheres, are therefore necessary in order to obtain sufficient velocity of flow, and when the pressure falls much below 30 atmospheres the pump loses seriously in efficiency. For this reason the apparatus must work directly off the gas cylinder without, of course, the intervention of any reducing valve. The whole appliance may be attached to the cylinder in its stand, and if the milled wheel of the needle valve be covered by a sterile towel it can easily be worked as required by the surgeon himself, the actual suckers and the collecting rubber tube being the only parts that need be sterilised. In addition to the orthodox method of working the pump given above it can also be attached to the ordinary nitrous-oxide-gas apparatus with foot control, and finally in large operating theatres where high-pressure steam is laid on it may be permanently attached, but in such a case, as the pressure available is much lower, a special large nozzle must be used. Between the pump and the actual sucker is placed a receptacle for collecting the fluids withdrawn. This should be as small as possible consistent with its ability to hold a reasonable quantity without constant changes being necessary. Considerable variation occurs according to the character of the work. For cleft-palate cases a small bottle holding less than a pint will be found sufficient, but for abdominal and bladder work the capacity should not be less than a quart.

A large amount of attention has been paid to the design of the suckers themselves. For the simplest types of work, such as the removal of thin fluids from open cavities with rigid walls, an ordinary piece of rubber or other tubing is all that is necessary. For the majority of cases, however, including abdominal and bladder operations, specially designed suckers are essential if damage to surrounding structures and constant blockage of the tube are to be avoided. A universally useful type of sucker head is that shown in the illustration. All the surfaces are made exceedingly smooth and the suction is applied around the sides only of the expanded head. The tendency for bowel or mucosa to be drawn into the sucker is therefore minimal. The tube is curved above to form a suitable handle for manipulation, and upon the convexity of the curve is an aperture which while the pump is working is closed by the finger.

In the event, however, of there being any tendency for tissues to be drawn into the sucker, and the only tissue which it has been found by practice is likely to do this with specially designed suckers is very thin omentum, the finger is immediately removed from the aperture, thus releasing all negative pressure on the end of the instrument. The same design is made in oval shape for use in narrow cavities, and in flattened form to replace one of the blades of a bladder retractor. Made with a flexible stem it can be moulded to fit any sort of wound, while in small sizes it forms the most suitable sucker for cleft palate cases. For abdominal work, where there are larger quantities of fluid present, the cage sucker head will be found more satisfactory. For clearing blood and fluid from the naso-pharynx a small flexible and flattened head is required, while for operations where the exposure is very limited, such as mastoids and operations upon the base of the brain, Gasserian ganglionectomy, &c., a very fine sucker is demanded. The aim, however, has been to reduce the number of sucker heads required to a minimum, and it will be found that for general work the first type described is sufficient.

In the accompanying illustration the cage and universal suckers are shown first and second. The third is a fine probe-ended sucker made of flexible metal so that it can be bent to enter any small cavity without interfering with the line of vision. It will be found particularly useful in operations upon the brain, but owing to the small calibre care has to be taken that the blood does not coagulate in the orifice. In both the fourth and fifth types the rigid handle is replaced by a flexible metal probe attached to the head. In this case the stout rubber collecting tube is passed over the probe and attached to a suitable rim on the head. The probe can now be bent to accommodate itself to any shaped wound and will carry the rubber tube with it. No. 4 is especially useful in operations upon the gall-bladder, where it can be made to lie well out of the way in one corner of the wound. No. 5 is designed to be passed through the nose and to lie in the naso-pharynx during operations upon the mouth, the probe carrying the rubber tube being bent around the margin of the nostril to hold it in situ. The last illustration is of a sucker designed for use in operations about the base of the bladder and is so shaped that it at the same time acts as a retractor. The following quotation from a recent article upon carcinoma of the prostate by Mr. Clifford Morson illustrates the value of suction in such cases: "Until recently I have been hampered by the blood welling up at the bottom of the wound and obscuring my view, but this obstruction has been overcome by the use of Lake's suction pump. This instrument not only evacuates the blood as it collects, but by a slight modification can be used as a retractor."

In entering into further details concerning the use of these suckers it must be remembered that the real problem is not the suction of thin fluids, but of such materials as blood and thick pus, often containing large flakes of lymph, and it would be as well to state without delay that there are some varieties of pus and of blood-clot which can never be removed by suction. The reason for this is fairly obvious, for at most the atmospheric pressure of 15 lb. to the square inch is available even with a perfect vacuum, and most of the pumps for producing suction fall short of this by a big percentage. The author has conducted experiments which show that a pressure of 15 lb. to the square inch is not sufficient to move old blood-clot or lymph along tubes of such size as can conveniently be used in surgery. The larger the calibre of the tubes the better, and it will be noticed that in this apparatus all tubes have been kept as large as possible. Nevertheless there is a limit beyond which it is not practicable to go, but this limitation only renders the apparatus very slightly less valuable, since the occasions upon which such materials have to be dealt with are few and far between. To give an example of the type of case the author recently attempted to use suction to empty a psoas abscess without success. By no means could the pus be drawn through the tube, although pressures approximating to atmospheric were applied. When the abscess was opened, however, it was found to be full of a thick caseous material of semi-solid consistency containing even more solid masses.

It has already been mentioned that old laminated clot cannot be removed by suction, but, on the other hand, recent clot which is likely to form during an operation can be removed with ease. There are, however, certain precautions to be taken. If continuous suction is kept up, and this is rarely advisable, no trouble arises, since the blood is kept moving along the tube and does not adhere to the walls. Where the usual periodical suction is used, however, the tube should always be dipped in lotion or a little saline poured into the wound before suction ceases. This washes the tube through and prevents occlusion from the formation of clot in the lumen. The small vent hole in the handle of the sucker will be found of great value where there is any tendency for the tube to become blocked, for if the hole be alternately closed and opened an intermittent suction is applied to the contents which is often successful when continuous suction fails; it will frequently, for instance, break up freshly clotted blood and detach it from the walls. Occasionally it will be noticed that the fluid in the collecting bottle tends to froth. If this becomes excessive it can be remedied by a little liquid paraffin. It has already been stated that the collecting bottle need not be sterilised, but if this precaution be taken fluids can be collected for bacteriological examination.

The apparatus can be used in conjunction with the bronchoscope or œsophagoscope for the removal of blood and secretions, and also more directly for the actual removal of certain types of foreign body, a specially shaped tube being applied to the object which is held in position by suction while the tube is removed. Finally, the author has found this pump indispensable in emptying the stomach completely of its contents as a preliminary to gastroscopic examination.

Since writing the above it has been brought to my notice that the Michelin Tyre Co. supply cylinders of air compressed to 1800 lb. to the square inch, at a little more than half the cost of a similar sized cylinder of oxygen.

The instrument is made by the Genito-Urinary Manufacturing Company, Ltd., of 64, Great Portland-street, W. 1, and I am indebted to their Mr. Schranz for the extreme care and accuracy with which he has carried out my ideas.

INTUBATION OF THE COMMON BILE-DUCT FOR STRICTURE.

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One of the most difficult positions in which the surgeon can be placed is that of having to deal with a stricture of the common bile-duct after he has removed the gall-bladder, for the one definite use to which the gall-bladder can be put is to serve as a channel for the bile to reach the intestine by means of an artificial anastomosis made by the surgeon. Usually the operator is wise enough not to remove the gall-bladder until he has made sure that he has taken away the obstruction, but cases occur in which with all care the unfortunate condition of biliary obstruction may remain or develop after the viscus has been ablated. We assume that the obstruction is not due to a removable cause such as stone.

Chronic pancreatitis and growth of the head of the pancreas may arise at any period after the gall-bladder has been removed, and it is particularly to this class of case that the method I wish to describe is applicable. It is possible, of course, to divide the common bile-duct and anastomose it to the duodenum, or to make a lateral anastomosis between the bile-duct and the intestine; the technique for this has been well described by Walton. It must be admitted, however, that any operative method which includes the opening of the duodenum and the making of an artificial duct adds considerably to the risk in a patient who already may be sufficiently weak.

In a case which presented this problem I lately had recourse to an expedient which I have never known to be practised previously, and which has certainly had a wonderful immediate effect, and might well have a beneficial influence in other cases of a similar nature. Briefly, I dilated up the strictured portion of the duct by means of a Lister's bougie, and then intubated the stricture with a rubber drainage-tube which was left in the duct. The particulars of the case are as follows:—

Mrs. A., aged 66, began to have an irritation of the skin in June; on the 24th she vomited some acid material, and on the 30th she consulted a doctor. There was slight jaundice. The jaundice gradually increased and the irritation became torturing. She could not sleep, and sometimes had "shudders" without feeling cold. There was no pain at any time, nor had there been any serious illness at any period of her life. A week later I saw her in consultation. There was then extreme jaundice and tormenting itching, and the skin bore clear evidence of scratching. There was no pain, and no abdominal tumour could be felt. Pressure in the right hypochondrium elicited slight tenderness. Liver not demonstrably enlarged. We agreed upon the diagnosis of growth of the head of the pancreas and advised operation with a view to anastomosing the gall-bladder to the intestine.

Operation.—On August 10th an operation was undertaken at the local hospital. The abdomen was opened by a right paramedian incision splitting the rectus. The liver was found enlarged, and the gall-bladder tensely distended, but not projecting beyond the liver-edge. There were omental adhesions to the gall-bladder, and the liver near the gall-bladder showed a cystic dilatation. The gall-bladder was aspirated, much thick yellow stuff came away, and two very large gall-stones were removed. The stones were so large that they bulged towards the common duct, and it was thought that the liver-cyst and the stones might have caused temporary obstruction of the duct. No thickening or enlargement of the head of the pancreas was detected, though special search was made, nor was any stone found in the common duct or cystic duct. Cholecystectomy was performed. In separating the viscus from the liver an adhesion was broken and a copious flow of glairy material emptied the cyst. A tube was inserted into the beginning of the cystic duct and the abdomen closed.

Progress was satisfactory for a time. On August 27th all but an ounce of bile daily was passing by the normal channels; the jaundice disappeared, and the stools regained their normal colour. A week or two later, however, the jaundice reappeared, and the bile again began to discharge through the abdominal wound. This condition became worse, so I advised further exploration.

On Oct. 9th I reopened the abdomen and found to my dismay that there was a hard mass the size of a walnut projecting forward from the head of the pancreas. I explored the common duct and found no stone. In exploring the duct the idea occurred to me that it might be possible to dilate the stricture of the duct. I therefore passed a probe through the narrowed portion with some difficulty, and succeeded in dilating the stricture with a series of Lister's bougies. Knowing that the duct would soon contract again I then inserted with difficulty a small rubber tube so that it was tightly fixed in the stricture. Drainage down to the common duct completed the operation.

For 14 days after the operation the bile continued to come away through the abdominal wound, but then the wound completely healed and the stools regained their normal colour, and the patient left hospital looking and feeling well on Nov. 15th.

The patient has thus experienced the great benefit of being relieved of the jaundice.

FIBROCYSTIC DISEASE OF BONE.

NOTES ON THE PATHOLOGY OF TWO CASES.

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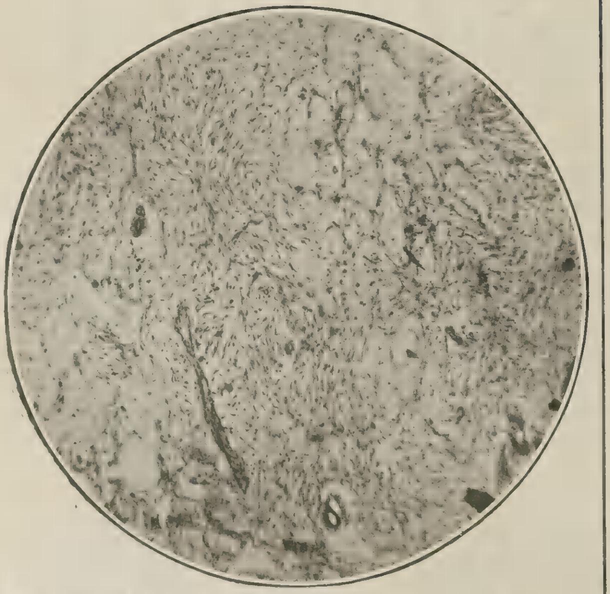
The pathological origin of cystic cavities occurring in the medulla of long bones has for some time been a matter of contention. Apart from the rare cases of hydatid disease of bone, the majority of cysts have been ascribed to degenerative changes taking place in myelomata; that a solitary cyst in bone can be formed primarily is doubtful. In most of the published cases it seems probable that they are secondary formations.

An interesting group of cases, both from the pathological and clinical standpoint, are those in which one or several cysts occur in pre-formed fibrous tissue, replacing the true compact bone. Von Recklinghausen was the first investigator to classify and name this group, "osteitis fibrosa cystica," and Elmslie collected and published a series of such cases. Lawford Knaggs, in his Hunterian lecture of January, 1923, gave the following clinical classification: (1) cases in which the prime change is the development in the bone of a uniform mass of fibrous tissue; (2) cases in which such a uniform mass is showing signs of degenerating into cysts; (3) those in which much bone is developed, and the disease appears to be coming to an end; (4) single cysts of bone.

I quote this because the two cases about to be described fall exactly under the first two heads, illustrating an early and late stage of this condition. Both cases occurred in girls aged 14 years, and in both the right femur was affected, in one the upper and in the other the lower end.

Fig. 1.

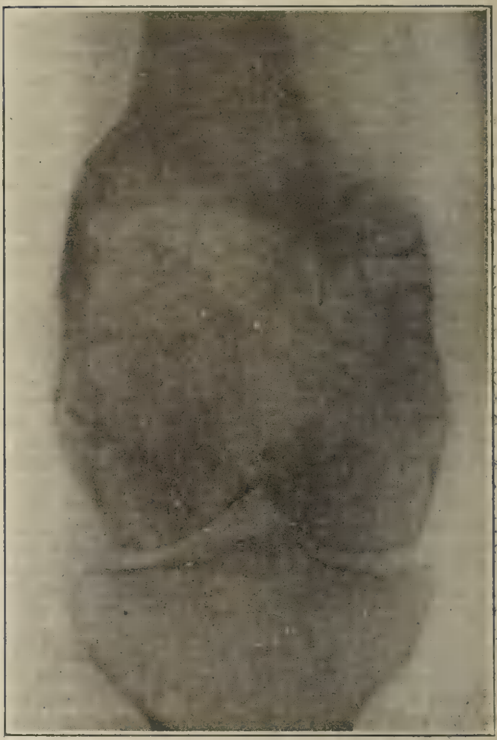


Case 1.—Showing material curetted from cystic cavity opposite the lesser trochanter of the right femur. Definite spindle-celled fibrous tissue can be seen, with inter-fibrillar spaces containing non-staining myxomatous tissue.

Case 1.—H. H., aged 14, fell on the right hip in March, 1920, and about three weeks later complained of pain over the great trochanter. She was admitted to the West Hants Hospital, Bournemouth, and as there was some limitation of movement, was considered to be an early case of tuberculous arthritis, and treated as such with benefit, the pain and limitation of movement disappearing.

A year later, however, she was readmitted with similar symptoms, and an enlargement of the subtrochanteric region of the right femur noted. An X ray showed this to be a cystic cavity. This was explored, the medulla opened, and a quantity of vascular myxomatous tissue removed. The pathologist's report was "spindle-celled sarcoma undergoing myxomatous degeneration and necrosis, probably highly malignant" (Fig. 1). A further curettage of the cavity was performed in July, 1921, and the pathologist's report was "spindle-celled sarcoma undergoing myxomatous degeneration—erosion of bone seen in part of the section."

Fig. 2.



Case 2 (July, 1922).—Radiogram showing large cystic expansion of lower end of femur, with marked bony trabeculation suggestive of a myeloma.

In view of these reports she was admitted to Middlesex Hospital in August, 1921, under the late Mr. T. H. Kellock, for radium treatment. Strangely enough, Case 2 was in the same ward at that time and a diagnosis of "osteitis fibrosa cystica" made in each case. In this instance it was considered, in view of the diagnosis, that treatment had been sufficient, and the patient was sent home to be kept under observation.

Since then she has been perfectly well, the affected femur is normal, and she is in no way incapacitated.

Case 2.—E. R., aged 14, was treated at Middlesex Hospital in November, 1920, for a supracondylar fracture of the right femur. Skiagram showed no pathological bone change and good union was secured with ordinary extension apparatus.

In June, 1921, she was readmitted under the late Mr. Kellock, the right femur having been re-fractured in the same locality, this time whilst she was walking to work. There now appeared to be a globular swelling of the lower end of the femur, and an X ray showed a large cystic cavity expanding the bone and causing a secondary fracture. A diagnosis of "osteitis fibrosa cystica" was made, and the site of fracture explored. A greyish gelatiniform mass was found to be protruding from the femur, and on being scraped away a large medullary cavity was evident, through which the fracture had occurred. Several large bony trabeculæ were present. It was cleaned out with spirit and filled with decalcified "bone bobbin," the patient treated with extension as before, and discharged after six weeks with a walking calliper splint.

The pathological report on the material removed was as follows: "The general appearance of tissue is that of a myxoma. It consists mainly of irregular branching nuclei, often widely separated from one another by an almost homogeneous matrix. Blood-vessels are numerous, and there are large areas of hæmorrhage scattered throughout. Some polymorphonuclear leucocytes are present. The possibility of this tumour being a sarcoma in which mucoid degeneration has occurred must be borne in mind."

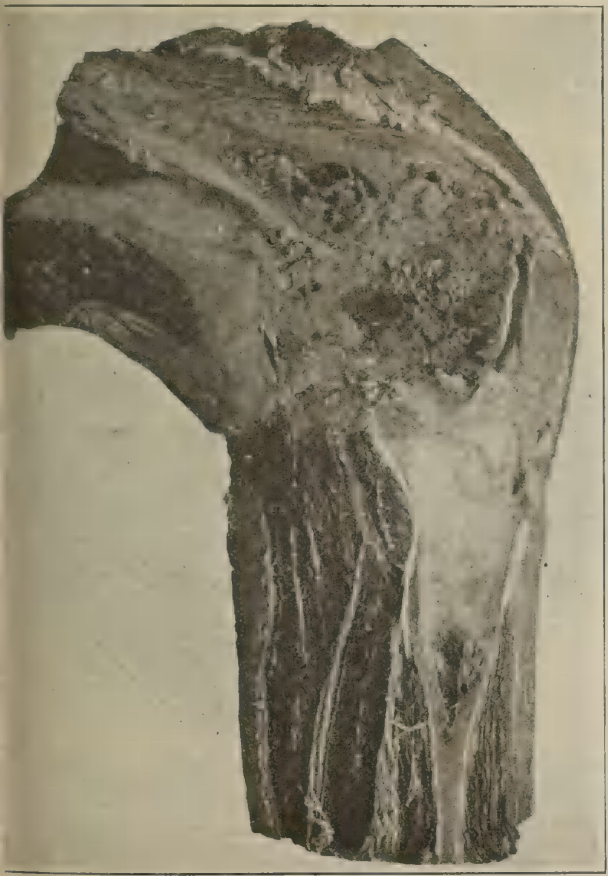
By July, 1922, the femur had again become very swollen (Fig. 2), and no weight could be borne on the limb. The patient was again admitted and curettage of the cavity performed, Morton's fluid being injected. Section of the curetted material showed numerous spindle-shaped nuclei separated by fine fibrils, and was diagnosed as a "fibrosarcoma." In December, 1923, the swelling of the femur had greatly increased, and as the limb was now shortened to the extent of 2½ inches, Mr. John Murray decided to amputate. This he performed through the middle third of the right femur, the shaft at site of section showing no pathological change. The patient made an uneventful convalescence, and has since then been perfectly well.

Pathological Considerations.

Macroscopic.—The amputated limb was frozen and sawn sagittally through the knee-joint (Fig. 3). A fracture is present at the supracondylar region of the femur, a fairly compact shaft fragment being impacted into a spongy and cystic condylar portion. Occupying the last inch of the entire medullary cavity is a large multilocular cyst. The lower portion consists of a spongy fibrous matrix, with a tendency to lamination in places. There are numerous small cystic spaces and several areas where hæmorrhage has occurred. The knee-joint is intact, although cartilage erosion appears to have begun at one place.

Microscopic.—Sections taken from portions of the affected area show: (1) At the edge—definite invasion of bone under the epiphyseal cartilage by a delicate connective-tissue reticulum with scanty spindle-shaped nuclei. (2) Centrally the reticulum becomes definitely fibrous with many scattered and elongated spindle-shaped cells, and cystic spaces are present. They are empty and possess no lining membrane. The larger ones appear to have been formed by the breaking down of the intralocular septa. Fibrous tissue bundles are especially prominent in places, and, cut transversely, give an almost small round-celled appearance.

FIG. 3.



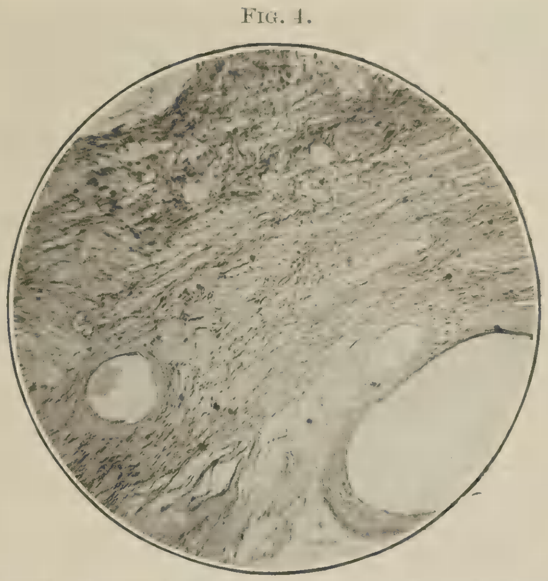
CASE 2 (December, 1923).—Amputated limb sawn sagittally. The tibia is quite normal, but the markedly cystic and spongy nature of the lower end of the femur can be seen.

There is an entire absence of fat and of any giant cells of the myeloma type.

Summary.

Thus two similar pathological conditions were occurring in each case, in the one in the upper and subtrochanteric region of the femur, and in the other in the lower or supracondylar region. Two independent pathologists of repute suggested the possibility of a spindle-celled sarcoma undergoing malignant degeneration in each case, and this very naturally, as a myxofibroma occurring endosteally is a practically unheard-of phenomenon. The pathological condition, however, seems clear. The preliminary change is the appearance of fibrous tissue in the marrow, which becomes entirely replaced. Later, an invasion and absorption of the compact bone occurs.

FIG. 4.



CASE 2.—Showing laminated fibrous tissue with cystic spaces.

A later development is the formation of cystic spaces within the fibrous tissue, the coalescence of these leading to larger cysts (Fig. 4). Such a condition, if it extends, will inevitably lead to secondary fracture. The preliminary treatment in each case was the curetting away of all affected tissue, and this, if done sufficiently early and thoroughly, would seem to be sufficient (vide Case 1). Should the condition progress, however, amputation appears to be the only available line of treatment, as in Case 2.

Why such a replacement of compact bone by fibrous tissue should occur is hard to say. In neither of these cases was there any evidence of inflammatory change. Knaggs believes that the condition arises in response to toxic influences which select a site that is in some way devitalised. That the disease may affect most of the bones of the skeleton is recognised, just as in osteitis deformans; and illustrative cases have been published by Von Recklinghausen and Fugii, and this has been advanced as an argument in favour of a general bony change, induced by toxic elements. At the same time there seems to be no great argument against the fact that the condition may arise primarily as a myxofibroma of bone, and that in rare cases, just as in "multiple myelomatosis," several bones may be affected.

I am indebted to Mr. John Murray for permission to publish Case 2, and to Dr. Knyvett Gordon for the loan of section of Case 1.

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A CASE OF OSTEITIS FIBROSA.

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THE following notes with illustrations of a case showing the typical pathological changes described by Paget,[1] but associated with fragility of the bones and bone tumours, are worth recording, owing to the relatively rare incidence of the condition.

H. W., a married woman, aged 40, was admitted into the Sheffield Royal Hospital, under Prof. Arthur J. Hall, complaining of general weakness and pain in the sides, back, and head.

Previous History.—She complained of having suffered from "rheumatism" for years. Five years previously the patient had a growth removed from the lower jaw in Ripon Hospital, and was discharged as cured. She has had no children or miscarriages.

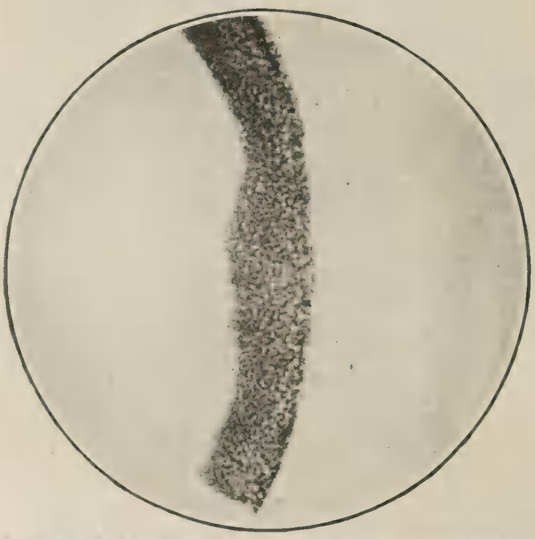
History of Present Illness.—Three years previous to admission she had noticed the development of general weakness with increasing inability to move about. Her periods became irregular, and she had some attacks of severe flooding. On admission she complained of pain in her joints. She looked emaciated and pale, and had palpitation on the least exertion. The heart was enlarged, and there was an apical systolic murmur conducted into the axilla. The brachial and radial and the arteries of the leg showed extreme thickening, so that the pulse (about 85) was difficult to take at the wrist.

Osseous System.—There was marked bending forwards of the whole sternum, forming an arc with convexity forwards. There was slight kyphosis in the lower thoracic region. There was no noticeable bowing of the limbs. No undue fragility of the bones was observed during life, and there had been no history of fracture.

The urine contained a large quantity of albumin.

Progress.—The symptoms and signs of chronic granular nephritis were so marked and the arterio-sclerosis so extreme that there seemed no reason to look for anything further. Ten days before her death she had a fit and became unconscious. There was frothing at the mouth, but no twitching or convulsion. The third day following this attack she became acutely maniacal with some vomiting. There was no pyrexia. Next day the maniacal symptoms had disappeared, but the vomiting continued. This was followed by a return to the maniacal condition with commencing gangrene of the finger-tips. Two days later, on the day before her death, the toes were similarly affected.

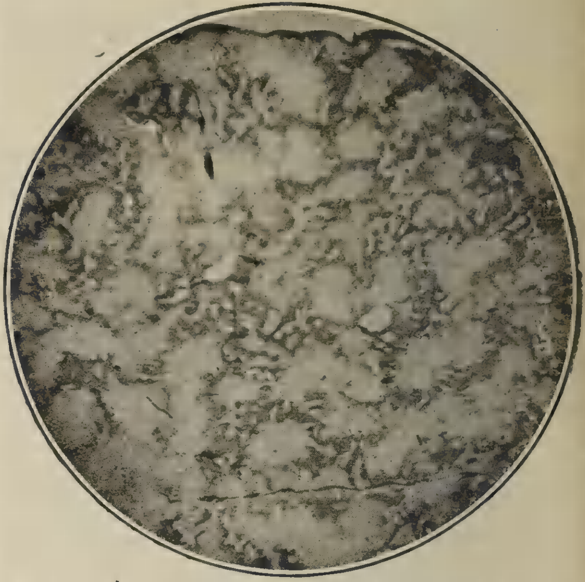
FIG. 1.



Radiogram of thin slice of skull vault, showing replacement of normal by irregular areas of calcified and uncalcified tissue.

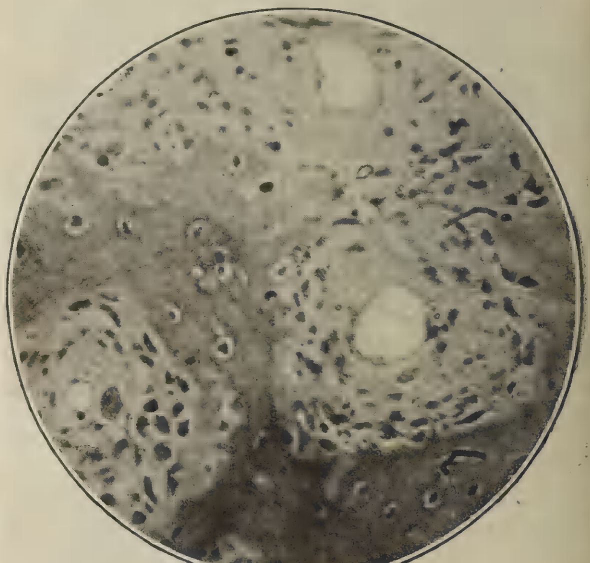
Post-mortem Examination.—An abnormal bone condition was discovered on removing the skull-cap. The screws of the "P.M. helmet" were found to penetrate the bone very easily. The vault wall was, in fact, cut with a knife with a sensation of cutting something soft containing grit. The skull wall was found to be irregularly increased in thickness, varying from 8 to 18 mm. All distinction of diploë had disappeared and the cut surface presented a speckled appearance with minute translucent areas studded through the bone (Fig. 1). On attempting to cut through the rib cartilages it was found that the ribs themselves were quite fragile and could easily be broken with the fingers. On the eighth left rib a large swelling was seen close to the neck (Fig. 4). Two other ribs had each a much smaller swelling. The vertebræ could be cut through quite easily with the knife. On raising the right leg during the post-mortem examination the femur broke across. The coronary arteries were sclerosed and the muscular tissue of the heart was soft and friable. In the aorta there were only slight atheromatous changes,

FIG. 2.



Transverse section of skull vault. The dark areas represent calcified parts; in the lighter, the cells are of the interstitial spindle-cell type.

FIG. 3.



Higher magnification of part of Fig. 2, showing the darker calcified area and the vascular nature of the uncalcified tissue.

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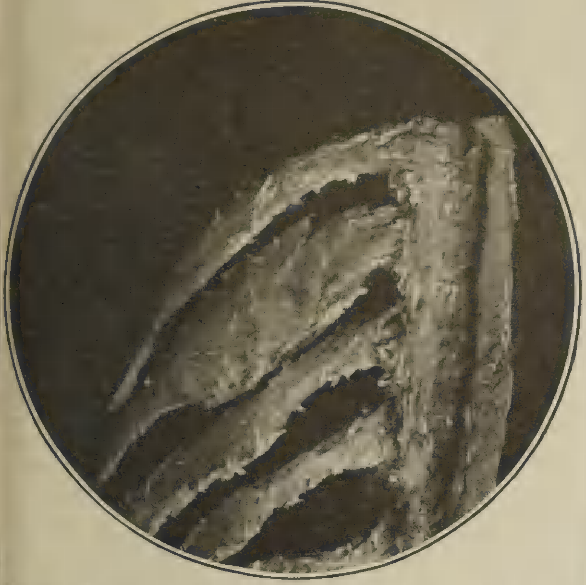
[1] Paget, James: Medico-Chirurg. Trans., 1882, lxv., 225.

but the more distal arteries of the limbs were extremely narrowed and calcareous. The splenic artery was also sclerosed and calcareous. The kidneys were very small and showed extreme cirrhosis; the arteries here were much thickened. The calyces contained numerous small calculi.

FIG. 4.

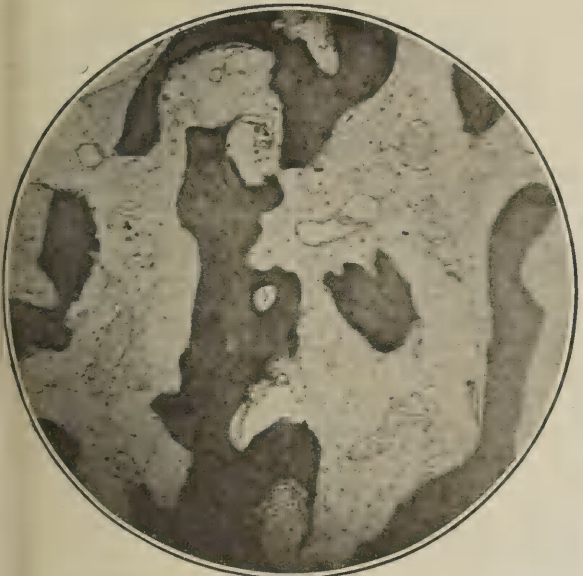


Showing tumour on the eighth rib, a fusiform swelling with a maximum circumference of about 4½" at the level of the angle of the rib.

Review of the Case.

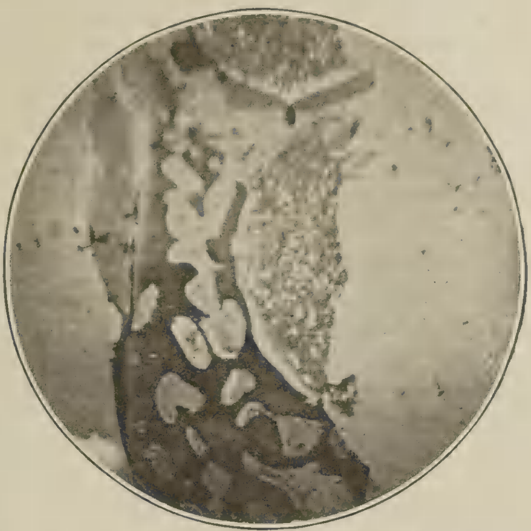
Reviewing, then, the main facts of the case, the definite irregular enlargement of the skull vault with haphazard calcification and absorption, a history of ntermittent pains ("rheumatism"), the bone tumours, and the extreme atheromatous condition of the smaller vessels—they all point to Paget's disease. The wasting condition in the ribs and other bones, where the cortex is being irregularly replaced by a delicate vascular fibrous tissue (thus making these bones extremely fragile), suggests, however, that the case might perhaps be more correctly classed among those associated with the name of von Recklinghausen—at least, the post-mortem findings and histological changes are very similar to those described by him under Osteitis Fibrosa, in Section 1B, Case 7, of Virchow's "Festschrift."[2]

FIG. 5.



Section of the growth shown in Fig. 4. Shows dark calcified lamellæ separated by irregular delicate but highly vascular fibrous tissue. The growth appears to be benign.

FIG. 6.



Shows the process in the ribs; the cortex undergoing absorption to be replaced by delicate vascular fibrous tissue. Marrow cavity not yet encroached upon.

In conclusion, I would express my thanks to Prof. Hall for his kindness in allowing me to publish the notes of this case, and for his criticisms and help.

INHERITED SYPHILIS AND TUBERCULOSIS.

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THE following paper comprises the results obtained and views formed from an investigation into the incidence of inherited syphilis among 100 children admitted to Fife and Kinross Sanatorium. In this investigation a routine serological examination was made in 100 children, medical and surgical, as they were admitted. It was hoped to determine (1) the incidence of inherited syphilis among 100 tuberculous children; (2) how far syphilis predisposes to the superadded infection with tubercle bacilli (T.B.); and (3) how far the conditions could be modified by anti-syphilitic remedies.

One was careful to obtain indisputable evidence of the existence of both infections. In all cases of pulmonary lesions careful methods for the discovery of the T.B. in sputum were resorted to, and an effort was made to obtain cultures. Where T.B. could not be found and could not be grown the skin sensitiveness was taken as evidence of infection. In this connexion it is well to note that inherited syphilis does not of itself give a positive skin reaction to tuberculin.[1] In the surgical cases, any abscess or exudate was carefully examined for T.B., and if none were found a guinea-pig was inoculated; where no abscess or exudate existed skin sensitiveness was again resorted to.

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[2] Festschrift Rudolph Virchow, zu seinem 71 Geburtstage, Berlin, 1891.

With regard to infection by the spirochæte, while a positive Wassermann reaction (W.R.) was strongly suggestive the various stigmata were always looked for. Some of the cases exhibited excellent examples of late luetic lesions, such as interstitial keratitis, atrophic rhinitis, and the various dental anomalies. In only one case was there failure to discover any lesion suggestive of inherited syphilis when the W.R. was positive, but Gougerot[2] points out that hereditary syphilis can exist without stigmata. According to Harrison,[3] 95 per cent. of inherited syphilitics give a positive W.R., while 5 per cent. may fail to give it. The W.R. wanes as the child gets older, and Dean[4] surmised that a series of young children would probably give a fairly high percentage of positive results.

Literature.

A comprehensive review of the literature which has arisen around these dual infections is to be found in the *Archives of Dermatology and Syphilology*, August, 1921, Hollander and Narr. In a paper by these two authors there is a detailed percentage of positive Wassermann reactors found among the tuberculous by various workers. Some of the figures correspond very closely to our examination of 100 adults.* Thus Letulle, Bergeron, and Lépine find 19 per cent. positive, Vedder 23 per cent., and Petroff 22 per cent. A similar investigation so far as children are concerned does not seem to have been made. Hochsinger[5] is of opinion that children with hereditary syphilis offer a favourable ground for the reception and development of tuberculosis. Fournier[6] remarks that tuberculosis so often develops on a basis of syphilis that inherited syphilis should be suspected in masked cases. Again, D'Arcy Power[7] says children with hereditary syphilis often show signs of tuberculous disease of joints. Gougerot[8] writes on hereditary syphilis that there are often enlarged glands associated with the bacillus of Koch. Emile Sargeant[9] writes that tuberculosis awaits the inherited syphilitic. Hutinel and Merklen[10] found evidence of congenital syphilis in 11 per cent. of 206 cases of tuberculous meningitis. They consider that the meninges are damaged by syphilis and thereby predisposed to tuberculous infection. In South Africa Brock,[11] in an inquiry as to the incidence of syphilis among natives, writes that syphilis prepares the way for tuberculosis, that it plays a rôle in the production of lung disease in youth and adult, the importance of which has not been recognised.

1. *Incidence.*

If it is true that inherited syphilis plays a part in the production of tuberculosis, then one would expect the incidence of inherited syphilis to be higher among tuberculous children than among a general "child" population of the same age and social status. Fortunately figures are available. Quoting from Leonard Findlay[12] Browning put the incidence of inherited syphilis among a general child population at 10 per cent. Elliot,[13] in a series of 130 children, found the incidence to be 10·8 per cent., but he thought 8 per cent. would be a truer indication, as he felt he had included an unusual number of typically congenital syphilitics. Churchill and Austin[14] found among 695 children in Chicago that 3·3 per cent. presented clinical evidences of syphilis. Among 100 children examined at Glenlomond the incidence of inherited syphilis works out at 11 per cent. There has been no selection of cases, and each child has had a W.R. done in the first week of admission.

The tuberculous lesions in the 11 per cent. were as follows. Seven patients showed enlarged glands, four of these were cervical, one abdominal glands, and two intrathoracic glandular enlargements. One patient was a tuberculous spinal case. Six of the patients showed pulmonary lesions, two of these also showed glandular enlargements, while from four of them T.B. were found in the sputum. The syphilitic lesions were definite in most of the cases and are described individually.

2. *Does Syphilis Predispose to Tuberculous Infection?*

A study of the pathogenesis of tuberculosis suggests a similar route of spread to that taken by syphilis. It has been pointed out[15] that the initial sore is commonly unobserved in tuberculosis, but that later there is a gradual spread by the lymphatic stream, for the lymphatic gland which has arrested a polymorph carrying T.B. may caseate and discharge its contents into the lymphatic stream. In the experimental infection of a guinea-pig it is quite easy to trace the spread of tuberculosis following the lymphatic system. In an address on Tuberculosis of the Lymphatic System, Sir Robert Philip[15] describes the extension from the glandular system to the viscera. He points out that this may take place by the thoracic duct or by direct extension from an affected gland into a bronchus or even into a blood-vessel. This is precisely the same route of infection as that chosen by the spirochæte. The only difference in the spread of the two infections is that the spirochæte is much the quicker of the two. Among the cases described by Sir Clifford Allbutt[16] was one where glands were found in the mesentery, mesocolon, and mediastinum of a man who died with a chancre, while the spleen was enlarged, so that in syphilis the spirochæte must reach the viscera in the first weeks after infection.

In dealing with the incidence of inherited syphilis among the tuberculous we find a percentage of 11, while the percentage among a normal child population is under 10. This alone would suggest that inherited syphilis plays only a small part in the production of tuberculosis. It is agreed that most people become tuberculised in childhood, but only a small proportion of those who have made acquaintance with T.B. become tuberculous or suffer from tuberculosis. Presumably in most children the T.B. lie latent, and[17] are found in the lymph nodes or lymphatic glands of the mediastinum in children who have died from other causes. In syphilitic children these same glands have already been infected by the spirochæte, for the spirochæte is very general in its distribution. There has been a pre-tuberculous infecting agent traversing the same route as the T.B. would take.

The lymphatic glands, already somewhat enlarged, can readily arrest any polymorph carrying T.B., and a spread from an enlarged lymphatic gland is now very easy. The whole way of spread is, as it were, ready at an early age for an invasion by T.B., and most of the children found with double infections are under school age. The greatest number of double infections were found among those who suffered from enlarged tuberculous lymphatic glands and the spirochæte was there first. It should be remembered that the spirochæte would not be observed, because at the age at which a child would die from tuberculosis the spirochæte would be difficult to find. But the morbid process due to the spirochæte can be found and the lesions created by the T.B. can also be found.

It should be kept in mind that in general syphilis favours viscera not readily attacked by tuberculosis—e.g., syphilitic disease of the liver is common, but tuberculous disease of the liver is uncommon, and, vice versa, tuberculosis of the lung is common, but syphilis of the lung is relatively uncommon. All pathologists can report post-mortems where the effects of the two diseases are seen, but careful examination as to the existence of the morbid processes of syphilis and tuberculosis in the same organ does not appear to have received much attention. The lymphatic glands are the organs wherein both infections might readily be found to coexist or wherein there might be an implantation of T.B., perhaps on a gummatous gland. Hollander and Narr[5] mention gummatous lymph nodes in the post-mortem report of a patient who died from a general tuberculosis and who suffered also from syphilis. I have been unable to find any other reference to the two morbid processes being found in the same organ.

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* THE LANCET, 1922, ii., 1376.

How far syphilis predisposes to subsequent infection by the T.B. is not readily determinable from an investigation such as this. These children do not die from tuberculosis. If all patients suffering from tuberculosis under 4 years of age were investigated by W.R., and those who die by careful post-mortem examination, something nearer the truth might be obtained. One should note that in tuberculosis the factor which determines the establishment of disease in the child is the dose or the oft-repeated infection by the T.B. A minute dose will only render the child sensitive to tuberculin, while a larger dose or repeated doses will produce disease. I would emphasise that the question is: Will the minute dose of T.B., insufficient to produce more than tuberculin sensitiveness in the normal child, produce tuberculosis in a syphilitic infant?

We cannot even attempt to guess at the truth without complete data from the early deaths from tuberculosis. An interesting observation as it affects the adult is found in the *British Medical Journal* Epitome, Feb. 9th, 1924. J. W. Samson, in Berlin, examined 1300 prostitutes for tuberculosis. Of W.R. positive prostitutes 12·5 per cent. showed signs of active tuberculosis, whereas only 10·7 per cent. of the W.R. negatives did so. Bronfenbrenner[18] likewise attempted to determine the incidence of tuberculosis among a syphilitic population. With a tubercle antigen he examined the sera of 193 syphilitics, and found 83 positive, or 43 per cent.; 55 of the 83 showed clinical signs of tuberculosis. Using the same tubercle antigen, he found 23·15 per cent. among 432 negative Wassermann reactors to give a positive test for tuberculosis. The conclusion he came to was that tuberculosis was readily implanted on a luetic soil. My own figures are small, and the figure of 11 per cent. positive Wassermann reactors does not allow one to state more than that, considering the method of spread of both diseases to be the same, there might be some slight influence favourable to the implantation of T.B. on a syphilitic terrain.

Description of Cases.

CASE 1.—J. P., aged 6 years. Had excision of glands in the neck in 1921 and 1922. She was admitted to the sanatorium on Oct. 4th, 1922. She had three large cold abscesses ready to break down, one submental, one at the angle of the jaw, and one pre-auricular. The chest showed considerable dullness down the right side, and many crepitations and rhonchi could be heard. She was a mouth-breather, the bridge of the nose was rather flat, the uvula was ulcerated and necrosing, while there was notching of the upper incisors, and Moon's teeth were also noted. The W.R. was definitely positive. The father had been in the army, and this child was born after he was home on leave, the older children being healthy. Sputum showed a few T.B. on concentration. The epitrochlear glands were enlarged. There were shotty glands in the posterior triangles. Treatment by "914" injections and ung. hydrarg. was instituted. The patient began to improve at once. The abscesses broke down but healed very rapidly, and the resulting scars are not at all marked or keloid. The W.R. did not become negative till after a second full course of treatment. The child gained weight steadily. Detuberculisation by tuberculin ointment is being steadily pursued, and the result is satisfactory.

CASE 2.—W. M., aged 8. At 4 years of age he had his right eye enucleated, cause unknown. His glands began to swell two years ago, and there is now a discharging sinus. Small shotty glands are to be felt in both posterior triangles. Both apices are retracted and the veins much dilated over the chest. A few crepitations could be heard at the bases. No T.B. were found, but skin reaction was positive. A guinea-pig inoculation from the discharging sinus failed to produce tuberculosis. His left eye showed an interstitial keratitis and slight posterior synechiæ of the iris. The bridge of the nose was much flattened, and the epitrochlear glands were enlarged. Teeth very good. The W.R. was strongly positive. He was admitted in September, 1922, and discharged in May, 1923. He had a full course of "914" and ung. hydrarg. The W.R. was reduced to a weak positive, the glands in the neck gradually disappeared, he gained one stone in weight, and the chest condition dried up completely. The interstitial keratitis cleared away, but the iris showed atrophic edges and was fixed posteriorly to the lens in places.

CASE 3.—M. R., aged 10. This patient was sent to "Glenlomond" with enlarged glands on both sides of the neck, some cough, and spit. There was a keloid scar on the right side of the neck at the site of a previous excision; her step-father has tuberculosis. Sensitiveness to tuberculin was marked. She presented few signs of congenital syphilis. The W.R. was strongly positive, the epitrochlear glands were enlarged, and she presents Sabouraud's sign on both upper first molars. (This sign has been discredited in some quarters, and it is difficult to attach a correct value to it. It consists of the presence of an extra spur of cusp on the inner side of the first upper molar.) She was given a full course of "914" intravenously and intramuscularly, and after a follow-up course the W.R. became negative. The glands disappeared and the patient gained steadily in weight. She has gradually been detuberculised by tuberculin ointment, which was not used till she had a negative W.R.

CASE 4.—S. M., aged 8, admitted April 20th, 1922, and discharged in May, 1923. She had cough and spit and enlarged glands in the neck. Her sputum showed a few T.B., there were crepitations over both lungs, and her finger-tips were clubbed. There was a small scar by a previous breaking down of a cervical gland. Her specific signs were flattening of the bridge of the nose and pegged teeth, while the W.R. was strongly positive. She had two courses of "914" and ung. hydrarg. The glands disappeared, the chest cleared up, the veins of the chest became less prominent, and the only impairment seemed to be a comparatively flat right upper lobe. A small amount of sputum remained, but this failed to show T.B. She gained one stone in weight. Her W.R. became negative. Detuberculisation by tuberculin was not practised in this patient. In the case of this child the doses of "914" had to be very small, the temperature rising very readily after the drug was given. She never got more than 0·1 g. at a time, and indeed began with 0·05 g.

CASE 5.—P. F., aged 6. An advanced case of tuberculosis, and has had breaking down of glands in the neck. She shows a depressed bridge of the nose, and her teeth are pegged and notched. Molars showed Moon's characteristics. W.R. is positive. She has crepitations down both sides and the sputum is T.B. plus. She was given a small course of "914." No improvement was found in her pulmonary condition. Treatment had to be omitted in this case.

CASE 6.—J. S., aged 6. This patient is sensitive to tuberculin, and shows only the evidence of thoracic glandular enlargement. Specific signs are not marked, the dentition is irregular, and the teeth pegged, but the W.R. was strongly positive. The child readily takes bronchitis, but T.B. were never found. She had a full course of "914" and ung. hydrarg. till she became negative. She gained in weight and was discharged well.

CASE 7.—A. C., aged 7. The condition was much the same as the previous case. There was evidence of enlarged thoracic glands, some sputum, and guinea-pig inoculation produced tuberculosis. The child was not left with us, and therefore had no treatment.

CASE 8.—A. S., aged 5. Enlarged cervical glands, many crepitations at the bases, a few T.B. in the sputum, slight ozæna, W.R. positive. Child had a full course of "914" and ung. hydrarg. She has now been under observation for nearly a year, and is slowly improving.

CASE 9.—C. S., aged 10. Curvature of spine. Congenital signs were the various dental anomalies and the W.R. was positive. He ran a slight temperature every night. This disappeared after treatment by "914" and ung. hydrarg. He was kept for two years and desensitised to tuberculin by tuberculin ointment.

CASE 10, aged 17 years, was always delicate. Her abdominal glands were removed when she was 12 years of age, and four years after she was admitted to the sanatorium. Her teeth had all been removed and nothing could be noted of a specific nature. Her W.R. was strongly positive. Chest showed evidence of enlarged bronchial glands. She was given "914" and immediately had rises of temperature which compelled us to stop treatment. Any attempt at treatment by "914" led to increase in temperature which would persist for many days. She was put on ung. hydrarg. and this seemed to suit her. She gained weight steadily and went home much improved.

CASE 11.—A child of 12 years, deaf, and with interstitial keratitis and perfect Hutchinson's teeth. Her father died of pulmonary tuberculosis. W.R. is, of course, positive.

There are enlarged glands in the neck and a few crepitations on the right side of the chest, but no T.B. have been found. Treatment has only lately been instituted. Sensitiveness to tuberculin in this case is very slight.

Besides the 100 children examined I have found another most interesting case of a girl of 20, sent as a hip-joint disease (?) after partial excision of the joint. The early history is not quite clear, but in 1918 she was sent to the Royal Infirmary, Dundee, under Mr. D. M. Greig. When he saw her the right hip-joint had been opened up and was discharging freely, while the general condition of the patient was very poor. Her W.R. was positive, and she healed in a marvellous way on anti-syphilitic treatment; so quick and good was the recovery that Mr. Greig was inclined to doubt the tuberculous nature of the infection. When she came to me her serum reaction was returned as partial. She improved on mercury and again walks quite well.

Included in the 100 children I have one child with caseous glands in the neck and from whom T.B. were obtained, who might be syphilitic, although the W.R. was negative and only partial after a provocative injection. This child, 5 years of age, showed some dullness of a cornea and had a posterior synechia of the iris. The child improved on mercury and tuberculin ointment and went home well.

3. *Effect of Anti-Syphilitic Treatment.*

How far can the conditions be modified by anti-syphilitic treatment? It depends on the amount of tuberculous disease.

Case 6, where there was a big tuberculous infection, was not improved, and Case 10 seemed to be worse when the arsenical preparations were exhibited. In Case 4 treatment had to be very cautious. The other cases improved. It is necessary to proceed with caution.

I frankly admit to being afraid to use potassium iodide. It never can cure syphilis, but it may open up tissue spaces and allow the arsenical compounds a chance. It may also allow of a further and easier spread of T.B.

The percentage of cases of inherited syphilis among tuberculous children may seem small when one remembers the statements made by older writers—e.g., that children with inherited syphilis often show signs of tuberculous disease of joints. It may be that some of these cases were syphilitic only; in fact, those cases which improved with Scott's dressing probably were syphilitic only. Cases of bilateral infection of joints are always suspicious of syphilis, and cases where tuberculosis can almost certainly be excluded do not reach me.

Conclusions.

1. The case against syphilis as predisposing to a subsequent tuberculous infection is not proven.
2. Anti-syphilitic remedies must be used with caution.

I have to record my thanks to Prof. W. J. Tulloch, University College, Dundee, to whom I am indebted for the serological reactions.

References.

1. Sargeant: Etudes Cliniques sur la Tuberculose, p. 191.
2. Gougerot: La Syphilis en Clientèle, p. 390.
3. Harrison: Syphilis in General Practice, p. 273.
4. Findlay: Syphilis in Childhood, p. 68.
5. Archives of Dermatology and Syphilology, August, 1921, p. 159.
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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF COMPARATIVE MEDICINE.

A MEETING of this section was held on Nov. 26th, Prof. F. T. G. HOBDAY, the President, occupying the chair.

PUERPERAL SEPTICÆMIA IN CATTLE.

Mr. LESLIE PUGH read a communication on this subject. He said that during the last 20 years there had been little or no decrease in the incidence and morbidity of puerperal sepsis in the human being, and it had occurred to him that some facts noted in the parturition of animals might afford some light on the human problem. In the course of his practice he frequently encountered metritis which was already apparent at the birth of the calf, though at that time the mother showed no systemic symptoms. A few days later, however, there were signs of septic infection. An important fact was that in most cases of streptococcal fever the cows had not been handled by either the veterinarian or the herdsman; especially significant was this in view of the readiness, in the case of the human subject, to blame either doctor or midwife in cases of puerperal sepsis for having, by unclean methods, conveyed the infection to the mother. Mr. Pugh devoted special attention to the syndromè caused by infection with Bang's bacillus. The first sign of this was a delay in parturition. After birth at full time of an apparently normal calf there was retention of the placenta. Owing to many cattle devouring their placenta, the failure to find the placenta was not taken much note of. Within a few days there appeared a brownish-red vaginal discharge, and if at this stage no abnormality had been noticed, the further developments were serious, including evidences of a general toxæmia, and in spite of treatment at this stage death was liable to occur. If the veterinarian were called in within an hour or two of the birth, he would manually separate the placenta, giving particular attention to each cotyledon, and if this was followed by washing out with a weak antiseptic solution, recovery would probably be uneventful. From these cases organisms of the coli group had been recovered by blood cultivation; at a later stage this was overgrown by crowds of saprophytes. If there were delay in skilled treatment, the chance of success was much diminished, for streptococci would probably have dominated the field. *B. coli* infection occurred also in human cases of puerperal fever, and bacilluria in which this organism is present was frequent in pregnancy.

By what means did streptococci gain access to the region and multiply? He repeated that in cattle, normally, labour was unattended, yet coli organisms were present before labour took place, and presumably they were carried by the lymph or the bloodstream. He suggested that they found their way into the uterus through the suction action produced by the alternate contraction and relaxation of the uterus. This could be well demonstrated in the case of the cow, as when a considerable fragment of membrane protruded from the uterus it would make a 4-inch excursion to and fro. He threw out the suggestion that some such suction action in the human mother might account for the intrusion of organisms into the genital region.

Discussion.

Prof. LOUISE MCILROY agreed that there still remained an enormous gap in knowledge as to the mode of infection in these cases and the route which the virus took. *B. coli* was a most difficult organism to do research work on. The question of the invasion of putrefactive organisms was a very interesting one. She believed the majority of cases of puerperal sepsis started as a putrefactive condition due to faulty drainage from the uterus. These patients ran an ordinary temperature for several days, and then there was a lighting up, indicating the occurrence of a secondary infection. Every effort should be made to induce the uterus to contract properly. If in the uterus there were retained debris and blood-clot and possibly retained membrane, then the putrefactive organisms entered the uterus, and it was difficult to get rid of them. An important prophylactic measure in these cases, therefore, was to prevent the fatigue of the uterus by hurrying up the delivery, and, where such fatigue was likely to occur, getting the patient into a good condition of resistance by care at antenatal clinics. There should be free drainage of the uterus, but she did not suggest, however, that there should be local interference with the uterus in acute streptococcal infection. The insertion of iodine pessaries had in her hands been very successful.

Manipulations Not a Cause of Sepsis.

With regard to direct infection of the genital canal by manipulative measures, Prof. McIlroy said that the longer she worked on obstetrics the less she believed that organisms were introduced into the genital canal by manipulative interference. This view was supported by the fact that despite the advances in aseptic and antiseptic measures and general technique during that time, the maternal mortality-rate had not been materially reduced. A further confirmation was found in the observation that when operative interference in these cases was called for, they did not necessarily go septic—indeed, the great majority ran a perfectly normal puerperium. In addition, it had been reported that though most cattle were not attended at parturition, sepsis at that period was not uncommon. It was necessary, therefore, to look for other sources of sepsis. These she regarded as three in number: lowered immunity of the patient, lacerations of the genital canal, and latent infection in the patient herself, which might coexist with the first of these. The suction action of the uterus at this time, which Mr. Pugh had mentioned, might be operative in the human subject, but it was known that even if a portion of membrane was left behind, there was not much trouble provided the uterus contracted; it was when portions protruded from the cervix that trouble ensued.

She believed that in most of the cases the toxæmia was of intestinal origin, and toxæmia caused fatigue, and hence was at the root of the uterus contracting inadequately. She knew of no hospitals where there were not cases of febrile puerperium, and she was sure there were some lacerations of the vagina and cervix which were not treated properly, because it was not easy to diagnose them. It was well known that when the general immunity was lowered, small events which ordinarily would be unnoticed, such as a whitlow or a poisoned finger-nail, produced a general septic condition which might be very grave at this time. When positive results were obtained in the search for the *B. vaginæ*, she thought vaccines should be employed. Appendicitis and pyelitis were not uncommon complications of pregnancy, and the reason they did not loom larger in the puerperium was probably that the patients had gradually rendered themselves more or less immune to them. In the human, lactic acid pessaries were found useful; the normal bacilli of the vagina generated lactic acid, and the pessaries reinforced this, or supplied a deficiency. Finally, Prof. McIlroy said she was sure the sterilisation of vulva and vagina was a very misguided form of treatment, and was quite unnecessary in normal cases. And even washing out with a weak antiseptic might remove also the protective bacilli from the region.

Dr. M. J. ROWLANDS did not agree that there had been but little reduction in the deaths from puerperal sepsis in the last 20 years; formerly the deaths from the condition were seriously frequent. Intestinal intoxication he regarded as the chief factor in lowering the general resistance, and with the exception of *B. coli* he thought infection in the cases under discussion must be sought from outside the body. The policy of non-interference during the human puerperium was taught to him by Dr. Herbert Spencer, and he was sure it was the sound one.

Dr. REMINGTON HOBBS said he had seen several cases of puerperal sepsis which had been due to *B. coli*, but in the cervical smears he found staphylococci and streptococci also. Dr. Robert Donaldson examined for him 100 cases of urine from pregnant women, and in 23 it contained *B. coli*. The use of potassium citrate and sterilised glycerine locally obviated puerperal sepsis in all of them. Coli infection of the urinary tract was practically always accompanied at the puerperium by infection of the genital tract by the organism, hence the need for especial cleanliness.

Prof. ALFRED WILD spoke from a long experience in bovine practice. He found that cows which yielded milk were usually well looked after, but parturient cows were neglected and left largely to take care of themselves. Hence their hind quarters were in a very neglected state, and the entry of *B. coli* was a very easy matter. In treating these cases he advocated irrigation of the uterus by a very mild antiseptic, followed by introducing the hand and rotating the uterus, which manœuvre would usually start it contracting.

Dr. ADRIAN STOKES said he did not think the protective capacity of the cow was abolished by parturition. In many cases he had found streptococci in the lochia, and yet puerperal sepsis was not manifest. A woman who normally carried these organisms seemed to immunise herself, and was able to compete with the streptococci as they grew in her lochia. There was sound reason against the employment of strong antiseptic solutions. They did not reach all the organisms, especially those in crypts, and even if some were killed off, many remained, and they quickly multiplied to formidable proportions again. Moreover, A. Fleming had shown that antiseptics damaged the leucocytes, and hence seriously lowered the individual's bactericidal powers.

Prof. WOODRUFF (Australia) said the bacillus of contagious abortion was the commonest cause of the retention of the fœtal membrane. In Australia no calf-boxes for the cow nor foal-boxes for the mare were used; parturition took place in the dry open air and sunshine, and pathological conditions of the uterus in those animals were very rare in that country. He spoke highly of the results of using lactic acid in cystitis and in cases where puerperal infection was likely to occur.

Mr. W. E. LITTLE agreed that the contagious abortion bacillus was far the commonest cause of retention of fœtal membranes in cattle. He had had best results from flushing the uterus with normal saline.

The PRESIDENT spoke of the various shapes of uterus in different animals. In the mare, the placental membrane should be removed as soon as possible. In the cow, the membranes were left until they were ready to come away of themselves. If they were removed too quickly, laceration was very liable to occur, followed by septic metritis. In the case of the cat, the dog, and the sow, care had to be taken not to leave behind any placental membrane of any of the fœtuses. For years the practice had been to induce their removal by syringing, but only with very weak solutions, such as dilute permanganate of potash, or peroxide of hydrogen, or normal saline.

Mr. PUGH briefly replied.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

EXHIBITION OF CASES AND SPECIMENS.

THE Society opened its fourth session on Nov. 28th, under the presidency of Colonel L. W. HARRISON.

Syphilitic Œdema of Lip and Nose.

Dr. DENNIS VINRACE showed a man, aged 41, who 20 years ago had syphilis, for which he had been treated at various places. He came to the exhibitor with severe œdema of the upper lip, with much irritation of that and the lower lip and nose. The lips were also fissured, and the tongue enlarged, infiltrated, and leucoplakic. The Wassermann test was strongly positive. Dr. Vinrace had treated him solely on 0·2 g. doses of bismuthyl, and the patient said this had given him more benefit than any other method. In five months his weight had increased by 24 lb.

Dr. David Lees drew attention to the man's septic denture, and suggested its abandonment. He advised careful watching of the patient's condition, owing to the tendency of bismuth preparations to cause kidney trouble. A period of substitution of salvarsan for bismuthyl might be beneficial.—Dr. Margaret Rorke said she had seen very acute and persistent tongue and lip cracks clear up well under colloidal sulphur and under intramin.—Dr. B. B. Sharp considered the removal of the septic mouth focus as the main need in the treatment of the case.

Dr. Vinrace also showed a man, aged 42, with a tuberculide of the face which was clearing up under CO_2 snow. Though the complement-fixation test for tubercle was negative—as also was the Wassermann—and there was no family history of tuberculosis, he still considered it tuberculide.

Persistent Infective Hypertrophy of Labium.

Dr. Rorke showed a young woman who attended hospital a month ago with acute œdema of the labium majus, probably syphilitic. She was doing very well on ordinary treatment, as very little rash remained, but the hypertrophy of the labium would probably persist.

Dr. T. Anwyl Davies said he had known cases of similar hypertrophy due to syphilis persist after the acute stage had passed.

Gonococcal Periostitis of Tibia.

Mr. V. E. Lloyd exhibited a man presenting what was regarded as gonococcal periostitis of the tibia. The patient was infected with gonorrhœa in March, 1923, and a month later had acute prostatitis. Two months later all the symptoms had subsided, the prostate seemed of normal size, and its secretion was normal. Last March, however, there was a slight return of the discharge, though the prostate and its secretion were then normal. There was at this date a complaint of pain in the centre of the left calf. Treatment with vaccines had very little effect. A skiagram taken two months ago showed a small periosteal node on the outer aspect of the upper end of the tibia. Wassermann was negative. Considerable improvement had followed the recent use of a gonococcal and mixed vaccine.

Dr. Lees inclined to the view that this was a congenital syphilitic condition; there was what seemed to be a syphilitic periostitis all along the tibia.

The President remarked that the Wassermann test being negative did not exclude syphilis.

A Case for Diagnosis.

Dr. Lees showed a man, aged 53, who came with a condition of knee, ankle, and wrist joints, the nature of which seemed obscure. Twenty years ago the man had gonorrhœa, and in the following three years he had two recurrences. Two years later he had arthritis in the joints named, and 12 and four years ago respectively he had synovitis of knees. There was no history of syphilis, and Wassermann was negative. On admission to hospital there was no palpable enlargement of the prostate, but the left vesicle was slightly indurated and nodular. There was neither frequency nor urgency of micturition, and the complement-fixation test for gonorrhœa was negative. There was heavy albuminuria, and the urine contained some coliform bacilli. The joints resembled Charcot joints in appearance; there was some choroiditis with commencing optic atrophy in both eyes; hence it might be that condition.

A Curious Tongue Condition.

Dr. G. B. Dowling presented a man, aged 45, who noticed, nine years ago, a small growth in the left lateral aspect of the tongue, and a similar lesion occurred later on the other side. Then followed small masses on the dorsum of the tongue, and they had gradually increased in size. The masses were in the form of a wedge pointing anteriorly, and the consistence was that of indiarubber. His difficulty was in deciding whether the condition was a tertiary, deep sclerous glossitis of the tongue, or some non-syphilitic condition. He inclined to believe it was median rhomboidal glossitis, which was first described in 1914 by Brocq. Wassermann was negative, and there was no history of syphilitic infection.

Dr. Wilfrid Fox said this tongue did not present the translucent, opalescent aspect usual in tertiary superficial glossitis. The most important element in this case was the septic one; his septic teeth should be removed. It would be of much assistance if a small piece of tongue could be examined microscopically.—The President referred to a tongue case, regarded as syphilitic, and so treated, which was later proved to be columnar-celled carcinoma.

Pleurisy Clearing Up During Syphilis.

Major A. T. Frost described the case of a man who came for treatment of a syphilitic sore and rash while suffering acute pleurisy. Six hours after the first antisyphilitic injection there was a pronounced exacerbation of the pleurisy, and it was gone next morning. There had been no treatment of any kind before the one injection.

Colonel Harrison was unanimously re-elected as President at the meeting.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A clinical meeting of this Society was held in the Medical Out-Patient Department of the Royal Infirmary, Edinburgh, on Nov. 19th, Sir David Wallace being in the chair.

Exhibition of Cases and Specimens.

Mr. Quarry Wood showed two cases: (*a*) *Sarcoma of the proximal end of the humerus.* The patient gave a history of swelling of the shoulder of six weeks' duration, which gradually increased. X ray examination showed a sarcoma to be present. The arm was removed by the interscapulo-thoracic amputation, the posterior method of Littlewood being employed. It was pointed out that this method had the advantage that the shoulder fell away easily, leaving the large vessels standing out in such a way that they could be easily dealt with. Also by this method the position of the patient had not to be changed during the operation. The patient made a good recovery, and was discharged on the fifteenth day. (*b*) *Carcinoma of the rectum.* The case was of about a year's duration in a man aged 56. The growth was movable and favourable for excision. A preliminary operation was first performed, at which colostomy was carried out; at this time the mass was found to be free and without secondary growths. The anæsthetic in this case was of note—a "twilight sleep" combined with spinal anæsthesia. At the second operation, when a radical operation was performed, the patient was in a perfectly natural sleep. There was little post-operative shock, and the patient made a good recovery.

Sir Harold Stiles showed two cases of *hypertrophic tuberculosis of the ileo-cæcal region.* The first was of a girl who had had an anastomosis of the ileum and transverse colon performed four months previously for symptoms of chronic obstruction. She was readmitted to hospital with abdominal pain and vomiting, and was found to have a mass in the cæcal region. This was diagnosed as tuberculous, in spite of the absence of the usual symptoms, and proved to be such at the operation. The second case was similar, and had been operated on five years ago. There was some post-operative trouble, due to the wound breaking down and a sinus developing. This was dealt with, and the patient had resumed her work on a farm. The case was probably of bovine origin. A third case showed a rare condition, that of *tuberculosis of the thyroid gland.* The patient was a boy aged 17, who complained of hoarseness and difficulty in swallowing. The thyroid gland was obviously enlarged, indurated, nodular, and fixed, and caused pressure on the trachea. The tumour was thought to be a sarcoma, and a decompression was performed. The case, however, turned out to be a tuberculous condition affecting the trachea. The wound healed well and the patient recovered.

Prof. G. Lovell Gulland showed a case of *pellagra*, and commenced with a short description of the condition, saying that it was often caused by consumption of protein which had not the full biological value. The case dated from a trade strike, when the patient, a woman, had lived entirely on bread and margarine. She showed mental depression, a scaly rash, bronzing of exposed parts, and gastro-intestinal disturbance. She was at first put on a milk diet alone, then on as generous a diet as possible, with meat. The patient was very markedly improved, but the diet had to be watched in spring to avoid the seasonal recurrence that so often took place in this condition.

Mr. A. A. Scot Skirving showed two cases: (*a*) *Marked depressed fracture of the occipital bone and effusion of cerebro-spinal fluid under the scalp.* The condition, in a youth, was the result of a machinery accident, and had previously been shown to the Society. There had been marked effusion of cerebro-spinal fluid, which had prevented trephining and raising the bone. The patient had been under treatment for 11 months and had been tapped four times. The first time a tumblerful of cerebro-spinal fluid was removed; the last time a tablespoonful was removed. The fluid had always been perfectly clear and without a tinge of blood. There was no further necessity to tap. (*b*) *Removal of a hatpin from the second part of the duodenum.* The patient, a girl aged 3 years, was X rayed and the pin, about 2 inches in length, was seen in the stomach. On operation the pin was found to have passed on into the duodenum and to have perforated the wall, the point being embedded in the right kidney. Attempts to pass the pin back into the stomach were fruitless, and the pin was removed from the duodenum. If dealing with a similar case in future Mr. Scot Skirving said the simplest method would be to draw the pin out as far as possible, cut the pin with pliers near the head, letting this take care of itself, and pass on down the alimentary canal, and by removing the dangerous shaft of the pin an incision into the gut would be avoided.

Mr. J. N. J. Hartley showed two cases: (*a*) *Periosteal sarcoma of the head of the fibula.* The patient, a miner, aged 21, complained of a swelling in the region of the head of the left fibula. His attention had been drawn to it three months previously by a slight twinge of pain. The tumour was about the size of a tangerine orange, firm and painless. A radiogram showed osteoporosis of the head of the fibula and radiating striæ characteristic of periosteal sarcoma. A supracondylar amputation was performed. An interesting feature in this case was that the patient happened to be a school friend of a patient whom Mr. Chiene demonstrated at the same meeting, and who had a tumour almost identical in character and in the same situation. The two patients were of the same age and lived in the same district. (*b*) *Late cerebral clot after an accident.* The patient, a man aged 52, had had a cycle accident and was admitted to hospital unconscious, with concussion. Consciousness was regained on the third day, and the patient was apparently making a satisfactory recovery. On the tenth day he complained of headache, became drowsy and apathetic, and later had mild seizures, affecting the hand, face, and leg. The following morning a severe seizure spread over the whole body, he became unconscious, and his left side was completely paralysed. A right temporal exploration revealed a subdural clot extending over the cortex throughout the area exposed in the temporal fossa. Following the operation the patient improved and had recovered.

Mr. J. W. Struthers showed a case of *recurrent lipoma of the thigh.* The case was of a man aged 60. The tumour had been operated on five times and had again grown. It was suspected that the fatty tumour had undergone changes, and assumed a sarcomatous form, a very rare occurrence.

Dr. John Eason showed a case of *lead poisoning with cyanosis due to sulphæmoglobinæmia.* The patient had developed an undoubted lead poisoning after working with an acetylene burner, cutting the plates of a ship. The interesting point in the case was that in treatment cyanosis developed which proved, on spectroscopic examination, to be due to sulphæmoglobinæmia. Dr. Eason said that these cases had only been described in literature by two observers, and that the condition was much more common than was usually supposed. The diagnosis could be made by the simple procedure of diluting the blood to 1 in 20 and looking for the characteristic spectroscopic band.

Dr. W. T. Ritchie showed two cases: (*a*) *Erb's paralysis.* The patient was struck on the shoulder during the war by a falling sandbag. Recently he was admitted to hospital suffering from lead poisoning. The case showed marked lessening in circumference of the right forearm, especially in the brachio-radialis and trapezius. There was also anæsthesia in the flexor surface of the forearm. There was loss or reduction of response to faradism in the affected muscles, but no complete reaction of degeneration. (*b*) *Acromegaly.* The condition was well marked in a man of 28, who had for long been under observation. The condition was first noticed at the age of 11, and showed signs of excessive secretion of the pituitary. Recently the case had changed to one of hypopituitarism, but so far without distressing symptoms.

Mr. Pirie Watson showed two pathological specimens: (*a*) *Melanotic sarcoma of the great toe nail.* This occurred in a woman aged 49, and gave rise to secondary growths in the groin. The toe and glands were removed, and showed the characteristics of a melanotic growth. (*b*) *Omental cyst of unusual size.* Taken from a man of 68, this tumour was of very large dimensions and filled the whole abdomen. Microscopically it proved to be a malignant endothelioma, but this change had probably only supervened recently, the original growth being an omental cyst.

Dr. R. A. Fleming showed a case of *neuro-fibromatosis* occurring in a labourer aged 60. There was a wide and symmetrical distribution of tumours, involving the fifth cranial nerves and cutaneous nerves of the scalp, the cutaneous nerves of both arms and thighs, and the intercostal nerves. There were no nodules below the knees and none on the hands. The patient complained of tingling and pain along the nerves involved, but sensation to touch, heat, and cold was unaffected. Some nodules were sessile, others pedunculated.

Mr. Douglas Guthrie showed a case of *total laryngectomy.* The patient, a man aged 35, had been gassed in 1918, and complained of hoarseness ever since. Laryngoscopy this year showed the left arytenoid and ventricular band much swollen and almost occluding the larynx. Tubercle and syphilis having been excluded, tracheotomy was performed and a portion of the growth removed. The growth was found to be one of epithelioma, and at a second operation a complete excision of the larynx and the left lobe of the thyroid was performed. The patient was doing well, and had quite an audible "pharyngeal" voice.

Mr. George Chiene showed two cases: (*a*) *Elephantiasis of the left leg and scrotum.* The patient was a male aged 18. The leg had been operated on previously and had greatly improved, the scrotum was still very large, and the patient was desirous of further treatment. The origin of the condition was unknown, the patient never having been abroad. (*b*) *Sarcoma of the upper end of the fibula.* The condition first troubled the patient, a man of 21, by causing pain in the back of the leg; two months later a swelling was noticed. The patient was admitted four months from the commencement of symptoms. Sarcoma was diagnosed from X ray appearances, and the leg was amputated through the thigh. (See Mr. Hartley's case.)

Sir Norman Walker showed several cases illustrating *treatment of lupus by arc-lamps*—the "artificial sunshine" method. All cases showed marked improvement, and the minimum amount of scarring without contracture was demonstrated. A case of tuberculosis of the larynx similarly treated and showing marked improvement was described.

Mr. J. J. M. Shaw showed three cases: (*a*) *Adenocarcinoma of the pelvic colon.* The patient, a man of 71, had previously suffered from signs of subacute intestinal obstruction, followed by apparent spontaneous recovery, this two years ago, and recent onset of acute peritonitis. The growth had been removed by a two-stage operation. (*b*) *Laparotomy for acute intestinal obstruction* due to volvulus of the ascending colon in a man aged 30. (*c*) *Shrapnel wound* of the thigh sustained in a man aged 28. The wound was received in 1918, and was now causing pain. Radiographic examination showed nine and a half sewing needles in the affected part of the thigh. At the time he was wounded he was carrying a packet of needles in a case in his trouser pocket, and these had apparently been carried in with the bullet.

Dr. J. D. Comrie showed two cases: (*a*) *Disseminated sclerosis with mental changes.* Patient was a man of 33 years who had suffered from numbness of the feet for ten years, then unsteadiness and spasticity of gait, and later tremors of the hand and occasional dysuria. The plantar reflexes were extensor; the optic discs pallid. For the past two months he has been lacking in concentration, with progressive mental deterioration. (*b*) *Dementia præcox of rapid onset.* A girl, aged 19, had been rather listless for two or three weeks, when one day when at work she behaved strangely, laughing and crying without reason. Three days after this she was apprehensive, did not answer questions, smiled vacantly, had delusions of sight and hearing, and was at times katatonic.

Mr. Frank E. Jardine showed a case of *retroperitoneal hernia.* A boy, aged 13, was admitted to hospital as a case of "acute abdomen," and on examination there was found to be a tumour just under the right costal margin; this, after consideration of the symptoms and position, was diagnosed as a retroperitoneal hernia, which was confirmed at operation. Twenty-eight inches of gangrenous small intestine was found in the sac and had to be resected. Of interest in this case is that a sarcomatous tumour was found in the resected intestine, and this might have caused the hernia.

Dr. Charles McNeil showed two cases: (*a*) *Congenital pyloric stenosis.* The condition occurred in a breast-fed male infant first seen when 4 weeks old. Typical symptoms and signs were present. Stomach lavage was carried out twice daily, breast-feeding being continued. There was fairly steady improvement, with a gain of 4½ lb. in three months. Gastric peristalsis was still visible at the time of showing. (*b*) *Interlobar empyema,* with aspiration and recovery. The patient, a boy of 8 years, had dullness confined to the right axilla; he was tapped several times unsuccessfully, but eventually 3 oz. of pus was withdrawn from a needle in the mid-axilla in the third interspace. Subsequently there was steady improvement, controlled by radiograms and leucocyte counts.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

A meeting of this section was held in the Royal College of Physicians, Dublin, on Nov. 21st, Dr. F. C. Purser, the President, being in the chair.

The President read a paper on

Sequelæ of Encephalitis Lethargica,

and cases showing sequelæ of encephalitis lethargica were shown by the President, Dr. L. Abrahamson, Dr. A. R. Parsons, Dr. G. E. Nesbitt, and Dr. J. F. O'Carroll.

The President said that the most constant and, perhaps, the most distressing after-effects of encephalitis were mental. Some writers said that 95 per cent. of cases showed mental sequelæ, and many put the figure at 70 per cent. He would be inclined to adopt the lower figure. The type and severity of the initial symptoms made a great difference to the subsequent mental condition. Patients with marked lethargy and coma were far more prone to mental sequelæ than those who were sleepless or delirious, or even maniacal, in the acute stage. The age of the patient, too, made a great difference. The young, under 12, were likely to suffer most. Mental deficiency and insanity were frequently recorded as sequelæ. Most of the physical sequelæ were residua of conditions characterising the acute stage. Of these some form of ocular abnormality was the commonest. Unlike the age-incidence of mental sequelæ, children were far less liable to these residua than adults. Most cases occurred between the ages of 15 and 40. In general, physical residua, with the exception of the Parkinsonian syndrome, tended to abate as time went on. This was especially so with ocular paralyses. There was, however, much reason to fear that physical symptoms which followed an acute attack after an interval of some months, and which were not merely residua persisting from an acute attack, tended to progress rather rapidly. Involuntary movements were said to occur in 15 per cent. of cases. The form of the movements varied greatly. Some resembled Sydenham's chorea so closely that no difference could be detected between the two conditions. Hemiplegia, or less extensive paralyses showing involvement of the pyramidal tract, was not infrequently met with. Sensory residua were indefinite. Pains, lasting some weeks, and possibly attributable to lesion of a posterior nerve-root, might occur. Obesity was an unusual sequel of encephalitis, but it seemed to be the most common trophic change following an acute attack. Finally, the Parkinsonian syndrome was, next to ocular paralysis, the most common sequel of acute encephalitis. It was computed that about one quarter of acute non-fatal cases ended in this tragedy.

The post-encephalitis Parkinsonian syndrome differed from typical paralysis agitans in many particulars which, apart from the patient's history of previous illness and other residua of encephalitis which might be present, made a differential diagnosis easy. The differences were ætiological and clinical, whereas paralysis agitans proper commenced after 45, and was commoner in men than in women; the post-encephalitic condition resembling it occurred at any age, from 15 to 40 years usually, and women were at least as frequently affected as men. Further, compared with true paralysis agitans, the condition was steadily and rapidly progressive.

The President then described in detail the clinical differences between true paralysis agitans and the post-encephalitic condition, and showed a case of the latter.

Dr. Leonard Abrahamson presented two patients with sequelæ:

(*a*) A boy, aged 11, who had suffered in March, 1924, from an attack of encephalitis with abdominal myoclonus. This myoclonus was still present. It varied in intensity and the contractions were often more forcible than those noted during the acute attack. The boy showed in addition great irritability, change in disposition, insomnia, and habit of holding in his breath. (*b*) A girl, aged 19, who had experienced in April, 1924, an attack of encephalitis characterised by ocular paralysis, insomnia, and delirium. She now suffered from delusions about her food, which she thought was poisoned. She also complained of the habit of yawning frequently. At times during the yawn her mouth remained open and she was unable to finish the yawn until some time had elapsed. Another habit developed was that of frequently taking deep breaths. Insomnia was present and towards evening she showed restlessness of the left foot, which moved continuously during the night.

Dr. Abrahamson referred to the variation in the incidence of the sequelæ of encephalitis after the different outbreaks. The Parkinsonian syndrome seemed to be much commoner after the last epidemic than after previous epidemics. He pointed out that in some cases the syndrome was whittled down to one or two symptoms. He discussed the changes in character noted in children, and referred to a child who developed marked kleptomania. In his experience sequelæ occurred in about 50 per cent. of patients. In a few cases recrudescences occurred indicating that the virus could remain in the system for long periods.

Dr. J. SPEARES referred to the difficulty of diagnosing cases of encephalitis lethargica at first sight. The drug he had found most useful was luminal, starting with ½ gr. doses, and increasing to 2 gr. doses. He asked if exophthalmos had ever been seen as a result of the disease.

Dr. ALFRED R. PARSONS referred to the frequency of restlessness in cases of sequelæ of encephalitis lethargica, both nocturnal and in the day-time.

Dr. T. G. MOORHEAD referred to a case which he had recently seen, and which displayed in a striking manner the Fröhlich syndrome.

The patient, a girl, aged 23, employed at clerical work, who had suffered from a mild attack of encephalitis lethargica in January last. Since then she had been mentally dull and listless, and she now presented a typical Parkinsonian appearance. In addition, however, she showed an extraordinary adiposity, affecting the entire body, but more especially the mammary glands and the hips. There was complete amenorrhœa, and an almost complete disappearance of pubic hair.

The condition was most likely due to involvement of the pituitary gland. He also referred to the possible value of psychotherapy in the nocturnal restlessness of children. Of the various drugs used for myoclonic spasm he had found hyoscine by far the most useful, but it was necessary to give it in fairly big doses.

Dr. NESBITT drew attention to the fact that the Parkinsonian syndrome frequently occurred in the acute stage of encephalitis lethargica as well as in the later stage, and to the frequency of mental deterioration in these cases. In the case that he had shown that evening he had given doses of influenza vaccine for a considerable time without much result.

Dr. V. M. SYNGE asked what dose of hyoscine should be given. In one American journal recently he had seen a statement by some observers who had got excellent results from the use of hyoscine; some bad cases had got well enough to go back to work and others had shown a great improvement. The dose given was one-fiftieth of a grain four times daily, and in some cases one-hundredth of a grain four times daily.

The PRESIDENT, in replying, said that he thought the Parkinsonian syndrome occurred in 50 per cent. of cases, and in nearly every case the face was affected. He had not found luminal of any use, and hyoscine even in small doses had seemed to him to make the patients delirious, and although he had found that in cases of paralysis agitans it had stopped the tremor for a time, he had not given it in cases of encephalitis lethargica. He did not understand how exophthalmos could arise as a sequela of the disease. The onset of bulbar symptoms was not at all uncommon. Regarding adiposity, Duncan had mentioned the Fröhlich syndrome occurring in a boy aged about 14 who was recovering from encephalitis lethargica. He was of opinion that the Parkinsonian syndrome far more frequently came on in the acute stage of encephalitis lethargica than in the later stage.

Dr. F. S. BOURKE read a note on a case of picric acid dermatitis.

Reviews and Notices of Books.

THE NERVOUS PATIENT.

By MILLAIS CULPIN, M.D. Lond., F.R.C.S. Eng., Lecturer on Psychoneuroses to the London Hospital Medical College. London: H. K. Lewis. 1924. Pp. 305. 10*s.* 6*d.*

THE practitioner who attempts to keep pace with current developments in scientific research and modern treatment is faced with peculiar, if not insuperable, difficulties when he tries to assimilate the material dealing with that class of patient generally known as "neurotic." In the first place, the needs of the individual who has failed to adapt himself to his environment are so intimately bound up with religious, moral, and social considerations that the physician who would heal a disability of psychogenic origin must be both fitted and willing to take upon himself something of the rôle of priest and pedagogue. Moreover, the ingenuities of the neurotic's attempts to twine himself around any prop that offers are so subtle that the physician or friend who tries to help him, unless especially qualified to do so, may run less risk of disaster for both by a refusal to face the real issue and hiding behind some simple physical theory of causation.

Nevertheless, it is certain that the practitioner with common sense and a real knowledge of things as they are, is able to do an inestimable amount towards preventing and curing the minor disabilities which lie at the root of so great a percentage of our physical and social ill-health. It is now recognised that the symptom which appears in the consulting-room does not result in a direct manner from a simple cause. Treatment on a "physical" theory of causation may do no more than chop a leaf from the stem of a flowering weed, but an over-enthusiastic concentration on the psychological factors may well result in an excavation around the supposed site of the rootlets which uproots wheat as well as weeds. Only a patient and highly skilled tracing of the fibres from flower to stem and from stem to rootlets can ever remove the weed completely, and this is scarcely within the compass of the practitioner. He must usually be content with an attack at some level of the stem which will remove the flower temporarily or permanently according to the shrewdness and comprehension with which the blow is directed. An understanding of the anatomy of the plant will indubitably help his aim. For the practitioner who has little or no idea of the possible underground connexions of common symptoms, Dr. Millais Culpin's book should come as a flood of light in a dark place. He has made a courageous attempt to meet a difficult position. To convey to the non-specialist worker the gist of specialist work which is still in a tentative stage of development is always a delicate task; Dr. Culpin has succeeded in presenting, with a refreshing degree of common sense and humour, a bird's-eye view of the psychogenic possibilities behind the many physical conditions that fill our waiting-rooms, as well as some helpful chapters on the "neurotic" conditions proper, which he prefers to term the "minor psychoses."

He pursues the wise course of defining terms before embarking on their usage, and has enhanced the value of his book to the busy man by providing a copious index in chapter (1) entitled Classification and Nomenclature. Other chapter headings are as follows: (2) The Position of Psycho-Analysis; (3) Suppression and Repression: Suggestion; (4) Physical Relationships of the Minor Psychoses; (5) Hysteria; (6) Bodily Symptoms commonly called Hysterical; (7) Anxiety and Obsessional States; (8) General Principles of Diagnosis; (9) The Examination of the Patient; (10) Asthma and Allied Conditions; (11) Exophthalmic Goitre: Stammer, Epilepsy, and Hysterical Fits; (12) Gynæcological Conditions; (13) Conditions Arising After Trauma or in Relation to Occupation: Head Injuries; (14) Postural Deformities: Digestive Disturbances: The Heart Neurosis; (15) The Psychological Aspect of the Effort Syndrome. The panorama is completed by chapter (16) on "Eye Symptoms," by Mr. W. S. Inman, and chapter (17) on the "Major Psychoses" from the point of view of the practitioner, by Dr. Stanford Read, while the last two chapters deal directly and indirectly with treatment.

The section on treatment is rather vague, but the difficulties of the task which the author has set himself in his comprehensive scheme are so great that we may congratulate him on the general measure of success he has achieved. We advise all practitioners to read this handy little book.

ARTIFICIAL SUNLIGHT AND ITS THERAPEUTIC USES.

By FRANCIS HOWARD HUMPHRIS, M.D. Brux., F.R.C.P. Edin., D.M.R. & E. Camb., Consulting X Ray Physician to the American Hospital in London. London: Oxford Medical Publications. 1924. Pp. 164.

THE use of natural sunlight in the treatment of surgical tuberculosis and other diseases has obtained results so satisfactory as to stimulate a great deal of research in actinotherapy, since it would obviously be of advantage to have an adequate supply of a synthetic substitute for those rays which Nature supplies in so fitful and uncertain a manner, especially in climates such as that of the British Isles.

In the little volume under consideration Dr. Humphris covers the whole field of the history, production, and uses of artificial sunlight. His clear, concise description of the properties and production of ultra-violet light demands from the reader only a rudimentary knowledge of physics. A necessary warning is given against the little high-frequency electrode machines which not infrequently masquerade as "ultra-violet ray apparatus" in hairdressers' shops and elsewhere; ultra-violet rays will not pass through glass, wherefore any effect these bulbs may have will not be due to ultra-violet light. Dr. Humphris has done wisely in confining descriptions of apparatus to the case of a few tried models. A brief review of present knowledge concerning the mode of action of light is well up to date. Administrative technique is discussed in some detail. The dose is measured by the degree of erythema (1–4) produced; for the removal of a nævus, for instance, one must produce an erythema of the fourth degree (that is to say, a blister), whereas in tuberculosis, especially of the pulmonary variety, much smaller doses are needed. The number of diseases in which artificial sunlight appears to have been applied with benefit is very great, the list including such dissimilar complaints as hay fever, alopecia areata, and enlarged prostate. In a final chapter Dr. Humphris discusses the use of X rays as a complement to actinotherapy, and concludes that the two can safely be combined, and that in many cases the X rays definitely assist the therapeutic action of ultra-violet light.

It is to be hoped that facilities for obtaining artificial sunlight treatment will increase rapidly, especially in centres where rickets and tubercle are rife. Any medical man wanting a brief but comprehensive sketch of this subject could not do better than to make use of Dr. Humphris's excellent little book.

A TEXT-BOOK OF HISTOLOGY.

Third edition. By HARVEY ERNEST JORDAN, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia. London and Philadelphia: D. Appleton and Co. 1924. Pp. 857. 25*s.*

THIS edition of Prof. Jordan's popular text-book differs little from previous ones. The book is peculiarly suitable for medical students because of the large number of illustrations it contains of preparations made from human tissue. It is disappointing, therefore, to find that the pig's liver still holds pride of place in the description of this organ, for it is difficult for the student to gain from it any true idea of the relation between the structure of the liver and its function. An even more serious blemish is the omission of any reference to Bj. Vimtrup's corroboration of Ch. Rouget's important work on the structure of capillaries. There are a few new illustrations, among them one from the heart of the "Beef." The ugly, yellow-tinted figures have no advantages over half-tones and might well be replaced.

INSULIN THERAPY.

Zur Einführung in die Insulintherapie des Diabetes Mellitus. Von H. STAUB, First Assistant der Medizinischen Klinik, Basel. Berlin: Julius Springer. 1924. Pp. 106.

ALTHOUGH the author desires that his work should be considered as only an introduction to the use of insulin, and not as a monograph, the book is in some ways the most complete which has been published. It is divided into three parts. Part I. consists solely of an excellent account, with references, of all the work which had been done in the attempt to discover insulin, and will be of use to anyone who wishes to refer to the full story. Part II. contains a good account of the discovery of insulin and of its properties, but does not add fresh information. Part III. describes the different methods of using insulin, with references to innumerable papers. The ideals of the author are to keep the blood-sugar normal, as well as the urine sugar-free, in order to allow the islands of Langerhans to have a chance of recovering their function. If no blood-sugar estimation can be made, he considers it safer to allow a little sugar to be present in the urine. The changes which take place in the various mineral constituents of the blood of a patient with diabetic coma after a large dose of insulin are very interesting. The inorganic phosphates are decreased, but the Na, K, Mg, and Ca all increased. The great influence of various infections is emphasised. The index and references are very thoroughly and carefully edited.

A TEXT-BOOK OF PHYSIOLOGY.

By H. E. ROAF, M.D., D.Sc., M.R.C.S., Professor of Physiology at the London Hospital Medical College, University of London. London: Edward Arnold and Co. 1924. Pp. 605. 25*s.*

THIS student's text-book should prove a great boon to the serious-minded students of medicine, and will doubtless become very popular among them. Physiology is treated in an original manner, and the student is gradually introduced to the more difficult parts of the subject. The book is up-to-date, well arranged, splendidly illustrated, and altogether a work for congratulation. A criticism might be made that there is, perhaps, a little too much chemistry and physical chemistry about it. But at a time when these subjects are finding such extensive applications to medical problems, it is, perhaps, just as well to include those parts of them which bear some relation to physiology. We are glad to see that the author has included some account of histology.

INDIVIDUAL PSYCHOLOGY.

By ALFRED ADLER (Vienna). Translated by P. RADIN, Ph.D., Associate Professor of Anthropology at California University. London: Kegan Paul. 1924. Pp. 352. 18*s.*

DR. Adler has claimed the title of "Individual Psychology" for his well-known theory of disturbed mental processes, though it is unlikely that the law of priority would support his claim. The theory is simple. Thwarted ambition or a sense of organic inferiority finds a spurious satisfaction through the neurotic symptom, and the "will to power," with its variant the "masculine protest" of the woman or weakly man, is made the basis of all the neuroses and some at least of the psychoses. Most psycho-pathologists agree that the neurotic symptom has not only a cause but an aim, and that the explanation of the aim is to be found in the dispositions, infantile or other, of the patient, but it is doubtful whether this aim can be usefully brought under an exclusive conception such as Adler provides. Nervous insomnia, for example, is an "arrangement" by which the patients demand that they be spared certain work and are able to force their own will upon other people (p. 165). Such simplicity is attractive till we find the same pathology applied to melancholiacs, who by their behaviour "become the centre of attention of their limited circle and are able to induce those individuals who feel obligated to help them to increased activity, to noteworthy sacrifices on their behalf, and always to make advances to them" (p. 249). When we read, too, that "A cure will take place . . . . as soon as he [the melancholiac] has enjoyed the satisfaction of having demonstrated his superiority" (p. 252), we seem to be in presence of a superficiality of observation surprising in what is described on the wrapper as "the Classic of Individual Psychology." These dicta concerning melancholia are not set out tentatively, but appear under the heading of "Individual Psychological Results obtained from a Study of Psychoses." They are in conformity with the general character of the book, which seems to have been written with an impetuosity indicated on p. 349, where the author says: "I am quite at sea as to what can be done in an age of intensified demoralisation like ours. The correct and proper thing is clearly to act immediately." This, however, is the only glimpse the author gives of any doubts he may have; the assertive manner which begins in the preface and is continued throughout will be regretted by those who believe that Adler's theory presents an aspect that exists in many neurotic disorders and must be studied in conjunction with other aspects.

COLONIC THERAPY IN THE TREATMENT OF DISEASE.

By O. BOTO SCHELLBERG. New York: American Institute of Medicine, Inc. 1923. Pp. 202.

THE nature of this book is such as to induce caution on the part of the reviewer. Its title-page gives no clue as to the qualifications of its author, its publishers are an "Institute," which at first sight appears to be connected with the more commercial aspects of our profession. At the same time, the volume is well written, well illustrated, and supplied with a brief but authoritative series of references. The book is a plea for the treatment of many diseases by a very thorough and complicated system of colonic irrigation, the results claimed being, if not extravagant, at least sufficiently startling to make the sceptical reader demand further proofs before accepting them. The author, after quoting at great length from Dr. Robert Hutchison's masterly address on the "Chronic Abdomen," claims that, in such cases, "had the cæcum been reached and treated as it should be, every symptom he describes with such exquisite precision would have disappeared." The book is interesting, but we remain unconvinced.

THERAPEUTICS.

Traité élémentaire de clinique thérapeutique. Eleventh edition. By Dr. GASTON LYON, Ancien Chef de Clinique Médicale à la Faculté de Médecine de Paris. Paris: Masson et Cie. 1924. Pp. 1406. Fr.85.

THIS is a text-book of medicine with a strong leaning to treatment. What the writer has to say about the diseases themselves is generally in small print; the treatment is in more prominent type. It is thus easy for the reader to determine whether he will study the disease as a whole or will merely cull the treatment. This edition is, as the advertisement of the book says, *entièrement refondue;* it is, as a matter of fact, well purged of old material, for it is some 400 pages shorter than the last edition, but it is quite up to date in recent work. The use of bismuth in syphilis, of insulin in diabetes, both receive good notice. That field of treatment to which anaphylaxis and the use of colloids enter, a field of which the final value is still so difficult to gauge, is well covered. The placing together in this section of treatment of shock and treatment by shock provides an instance of the subtle contrast which is so dear to the French mind. This book maintains the position it has formerly gained of being a first-class one for the practitioner who wants to keep level with the ever-advancing wave of treatment.

DISLOCATIONS AND JOINT FRACTURES.

Second edition. By FREDERICK COTTON, A.M., F.A.C.S., Visiting Surgeon to the Boston (Mass., U.S.A.) City Hospital. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 745. 50*s*.

THE first edition of this sound and original work appeared in 1910. It was to be expected that this after-war edition would bear evidence of the influence on practice of the experience gained in military hospitals. It is somewhat surprising, therefore, to find how little that experience has affected civilian practice as it is represented by Dr. Cotton, who, however, takes care to tell us in his preface that his conclusions are based almost wholly on his own military hospital practice, and not from "a re-hashing of the bewildering printed and rumoured war-time reports." He is not enthusiastic in favour of the use of Thomas's splints for fractures, except as a temporary transportation measure, or combined with the Balkan frame. His experience seems to have been unfortunate, for he speaks of the occurrence of "horrid perineal sloughs" due to the use (or abuse) of this splint. Speaking of injuries of the upper extremity, of "arm traction downward, Thomas splint," he says: "I see no excuse for this arm traction thing." As regards the operative treatment of fractures, he thinks that the tendency of to-day is to minimise the use of inlay grafts, plates, and bands, and other "stunt" operative measures.

Evidently Dr. Cotton is a real master of his own methods, so that, perhaps, his results are not likely to be improved by his adoption of other methods, based on different principles. Anyway, the treatise is replete with information on the pathology and mechanism of fractures and dislocations, and with sound practical advice as to their treatment. It contains 91 pages and 192 illustrations more than the first edition.

JOURNALS.

JOURNAL OF PHYSIOLOGY. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIX., Nos. 2 and 3. Cambridge University Press. 1924. Pp. 99–258. 13*s*.—The Effect of Cerebral Anæmia upon Blood Pressure and Respiration, by Ff. Roberts. This communication deals in detail with the effects of anæmia upon the medullary functions. The experiments were all performed upon anæsthetised (urethane) rabbits and cats, with exception of two upon dogs (morphia). It was found that both the vaso-motor and cardio-inhibitory centres are directly stimulated by a slight diminution in their blood-supply. The resulting inhibition checks and sometimes annuls the rise of pressure which vascular constriction tends to produce. The respiratory centre is totally insensitive to diminution in its blood-supply until this diminution becomes extreme. Gasping is a modification of the nervous mechanism acting as a whole and is not due to the action of a separate centre. When the medulla is completely or almost completely anæmic, injection of lactic acid directly into a cerebral artery stimulates the vaso-motor centre, but is without effect upon the already paralysed respiratory centre. Hæmorrhage is not attended with any increase in breathing until a very low pressure is reached. Hyperpnœa of variable degree then occurs.—Taking up Carbon Monoxide by the Hæmoglobin of the Spleen, by A. Hanak and J. Harkavy. These observers confirm the statement of J. and H. Barcroft that on exposure of rats to an atmosphere which contained carbon monoxide the gas was rapidly taken up by the blood of the general circulation, but only slowly penetrated into the hæmoglobin of the spleen. This observation is extended to guinea-pigs and rabbits. In the case of guinea-pigs, between four and six hours may elapse before the hæmoglobin in the spleen pulp attains equilibrium with that in the blood; in the case of rabbits over two hours may elapse—a fact which suggests the almost complete occlusion of the blood-stream from the spleen, and the reduction of the rhythmic contractions to something quite nominal.—Alveolar CO_2 Pressure after Violent Exercise, by J. B. S. Haldane and J. H. Quastel. They find that the depression of the alveolar CO_2 after exercise can be used as a measure of the excess above normal of lactic acid in the blood. The amount of the latter after exercise and the rate of its removal have been determined. The rate is independent of the amount of lactic acid present, and is little affected by training or phosphate ingestion. The process of removal is vastly slower than that of the intramuscular lactic acid.—The Influence of the Blood-supply on Pancreatic Secretion, by B. P. Babkin. The pancreas is extremely sensitive to changes in the circulation provoked by stimulation of different nerves, or by substances with vaso-constrictor character or by compression of the aorta above the cœliac artery, while it continues to secrete some time after the blood pressure falls to zero. The more copious the pancreatic secretion the more difficult it is to inhibit it. The author's experiments were performed on dogs, and in chloralose he found a narcotic which itself produced a moderate secretion of pancreatic juice, and did not affect the action of hormones nor of secretory nerves. The slow continuous flow is not antagonistic to the secretory action of secretin, vagi, and pilocarpine. The section of splanchnic nerves increases the secretion provoked by chloralose, secretin, hydrochloric acid, and vagi. The stimulation of the vagi in the neck, the nerves being cut below the heart, practically does not affect the pancreatic secretion. But if a rise of blood pressure follows the stimulation the secretion is inhibited. The same relations are observed by compressing the vena cava inferior above the diaphragm. The introduction of defibrinated blood into the circulation produces a rise of blood pressure and inhibition of the pancreatic secretion. Stimulation of vagi below the heart provokes the secretion of pancreatic juice under extremely low blood pressure.—On the Location and Nature of the Action of Insulin, by J. H. Burn and H. H. Dale. The disappearance of dextrose from the blood-stream under the influence of injected insulin is now familiar, but the method of the disappearance remains obscure. Various suggestions have been made. Experiments were made on the isolated mammalian heart and on the decapitated and eviscerated cat with the view of providing additional evidence as to two relatively simple and primary points. (1) Whether the sugar which disappears under insulin is immediately oxidised or stored in some form which has hitherto escaped detection; and (2) what organs are concerned in the removal, whether by destruction or synthesis. The main results obtained are: Addition of insulin to the perfusion fluid accelerates the removal of dextrose therefrom by the isolated mammalian heart (confirming Hepburn and Latchford). The output of CO_2 by the heart is not proportionately increased, so that the extra loss of sugar is not entirely due to increased oxidation. In the decapitated and eviscerated cat, with constant infusion of dextrose, insulin produces the characteristic fall of blood-sugar. If the blood-sugar is prevented from falling by accelerating the infusion, insulin causes disappearance of sugar at many times the normal rate. The earlier stages of the insulin action are accompanied by increased consumption of oxygen, which may be pronounced, but is seldom, if ever, sufficient for the oxidation of the extra sugar lost. The respiratory quotient of such a preparation has always been unity, and has remained practically unchanged under the action of insulin. Immediate conversion of the sugar into fat or lactic acid seems to be excluded. The isolated hearts and the eviscerated preparations, from cats rendered diabetic by complete pancreatectomy, have given results in all respects similar to those of normal animals. The authors discuss the significance of these observations in relation to current theories.—The Effect of Insulin on Blood Volume, by J. B. S. Haldane and H. D. Kay. The administration of insulin to normal rabbits leads rapidly to a very appreciable rise in the blood volume. Comparative quantitative determinations in blood before and after the giving of insulin, particularly in the case of substances not equally distributed between the corpuscles and plasma, can only be accepted if this volume change is taken into account. The osmotic pressure of serum remains the same before and after the injection of insulin.—The Glomerular Control of the Kidney Blood Flow, by J. M. O'Connor. The experiments were made on rabbits anæsthetised with urethane. Owing to the anatomical structure of the kidney a secretion pressure of the urine at the head of the uriniferous tubule could not go above the pressure of the blood in the capillaries of the Malpighian tuft without cutting off the blood-supply from the kidney tubules. This would explain on a purely secretory theory the dependence of the formation of urine on the blood pressure. A similar cutting off of the blood flow through the kidney might be expected to occur when the blood pressure falls. An arrangement for determining the flow of blood for brief periods during a fall of blood pressure is described by the author.—On the Constancy of the Basal Metabolism, by Graham Lusk and E. F. Du Bois. From the records of experiments with 11 dogs the basal metabolism may be approximately determined within an error limit of ± 15 per cent. The same dog may manifest a constant level of basal metabolism extending over two years. A man between 30 and 40 years of age may show a basal metabolism during 11 years within a variation of ± 7·6 per cent.—The Effect of Variations in Blood Pressure on Pulse-Wave Velocity in the Brachial Artery in Man, by Sylvia K. Hickson and B. A. McSwiney. In normal subjects between the ages of 20 and 30, when a fall of blood pressure was noted on raising the arm to a vertical position, the lengthening of the carotid-radial interval was observed, with an appreciable slowing of the pulse-wave velocity. This postural variation in blood pressure is considerable and must be accounted for when estimating the pulse-wave velocity in arteries such as the femoral.—Vaso-Motor Centres. J. N. Langley describes his results on spinal vascular (and other autonomic) reflexes and the effect of strychnine, as determined mainly on curarised spinal cats. The animals were anæsthetised first, then either decerebrated, the vagi cut, and the cervical spinal cord severed, or they were decapitated. The great reflex rise of blood pressure obtainable after a small amount of strychnine has been injected makes it probable that in pathological cases of increased spinal excitability spinal vascular reflexes are important. No evidence was obtained that strychnine greatly increases the excitability of any autonomic nerve centre except the vaso-motor centres.—The other contributions are: The Effect of Curari and Degeneration upon the Electrical Excitability of Striated Muscle, by C. F. Watts; Blood Curves constructed with Arterial and with Venous Blood, by F. R. Fraser, G. Graham, and R. Hilton; and Renal Function in Summer Frogs and Winter Frogs, by J. de Haan and A. Bakker.

THE LANCET.

LONDON: SATURDAY, DECEMBER 6, 1924.

LICENSED HOUSES.

At the first session of the Royal Commission on Lunacy Law and Administration, reported in The Lancet of Nov. 1st, its Chairman, Mr. H. P. Macmillan, K.C., suggested that it might be necessary to reconsider the policy which since 1890 had arrested the growth of the licensed house. It may be appropriate to remind our readers of the genesis and functions of these valuable institutions. Licensed house is the official description of what is popularly known as a private asylum. Previous to the year 1774 there was no supervision or inspection of private "mad-houses" as they were then called. About that time public interest was aroused in matters pertaining to mental illness owing to the breakdown of George III. and of one of his Ministers. Private patients were then often badly housed, clothed, and fed, and many were improperly detained. It is only fair to add that conditions in the public "mad-house" were equally unsatisfactory. An Act was passed in 1774 which enforced the licensing of private asylums, hence the term—licensed house. The Act provided for the visitation of licensed premises, and made a doctor's "order" a necessary preliminary to admission. The licensing authority for the metropolitan area devolved on five Fellows of the Royal College of Physicans, appointed annually; in the provinces, the authority was the Justices of the Peace in quarter sessions. A licence was granted to any person who applied, and paid the necessary fee, and a licence could not be revoked. "Keepers" of licensed premises were obliged by the Act to send a notice of every admission to the Commissioners of the Royal College of Physicians. This Act of 1774 was the commencement of legislation concerning private hospitals for the insane, and incidentally created the first central authority in lunacy matters, the nucleus of the present Board of Control. Legislation affecting licensed houses appeared from time to time, notably in 1845, when the Lunacy Commission, with much increased powers, was constituted, and included three barristers among its paid members. In the year 1890 the Lunacy Act at present in force was passed. It resulted from the prolonged sittings of a Parliamentary Committee appointed in 1877. Among many changes, licensed houses were notably affected. By this Act no fresh licences were to be granted, and no increase of the number of patients in existing houses was to be permitted. It was, and is, permitted to transfer a licence from an old house to a new house, and provision is made for the division of a licence where a house is carried on by joint licensees. Such is a brief history of the origin and development of the licensed house to the present day. On Jan. 1st, 1923, there were 56 licensed houses in England, 19 being in the metropolitan area and 37 in the provinces. Patients in the 56 houses on the above date numbered 2206; 862 being men and 1744 women. In addition there were 149 voluntary boarders. No criminal or pauper patients are now received in licensed houses.

The restriction of licences in 1890 resulted from the conflict of opinion and evidence expressed before the Select Committee whose recommendations formed the basis of the Act. It was argued that it is undesirable for private individuals to take payment for the care of the insane, and that there must be a temptation for licensees to detain profitable patients for an unnecessary period. Further, a great many specific charges were brought against the owners of private asylums, accusing them of detaining individual cases for the sake of profit. Not a single charge was substantiated on inquiry by the Committee. It was also believed that the demand for private homes would cease with the growth of public hospitals and registered hospitals. To some extent this has been the case, as in 1890 there were 89 licensed houses in England, a figure which has fallen to 56. Yet licensed houses meet a constant public demand for private accommodation and treatment, and investigation shows that similar houses, privately owned and managed, exist in every civilised country in the world. There are houses to meet the needs and financial requirements of most sections of the English public. The licence is renewable annually; for the metropolitan houses by the Board of Control, and for the provincial houses by the justices of the county or borough in which the house is situated. The licence may be revoked, without appeal, by the Lord Chancellor on the recommendation of the Board of Control, or the justices concerned. Licensed houses are rigidly inspected, and the licensing authorities have considerable power; for example, they may direct alterations and improvements to be carried out if they consider such changes necessary for the comfort of the patients. No structural alterations may be made without the sanction of the Board of Control. Payments made by patients are notified to the Board, which is also informed of any change in the medical staff of a licensed house. Members of the Board visit the metropolitan houses six times in each year, and may arrive at any time of the day or night. The visitors to the justices, who include a medical man in their number, pay at least four visits annually to the provincial houses, while the Board of Control visits them twice in each year. These visits may be again made at any time of the day or night. In addition, licensed houses are visited by the visitors of the Lord Chancellor, who may call to see the diminishing number of patients found insane "by requisition," or to report on a patient whose affairs may be under the protection of the Master in Lunacy. The Board of Control and the visitors appointed by the justices interview every patient at their visits, and have access to the rather formidable array of official books and papers. They leave written records of each visit, and where doubt exists as to the propriety of detention in any particular case, a minute is made about the case in what is known as the patient's book. Moreover, both the Board of Control and the visitors have jurisdiction to discharge patients in licensed houses on their own authority. This frequent visitation is an undoubted advantage of the licensing system and affords protection to both public and doctors. Among other advantages of the licensed house are their small size, and the comparatively small number of cases resident at one time. The houses are generally very free from the appearance and routine of an institution, and the friends of patients enjoy complete liberty to visit at any hour, and that in strict privacy. Moreover, the relationship of the patients and their friends to the doctors is intimate, and closely resembles that existing between the family doctor and his patients in private practice.

Some measure of detention is necessary in many cases of mental illness, for social reasons, and it is this fact, coupled with the lack of insight shown in many cases into the nature of their disease that necessitates the judicial procedure known as certification, which implies the power of detention, properly protected against abuse respecting the liberty of the subject. Insanity is not the only illness in which some loss of personal liberty occurs. The infectious fevers, and many cases of tuberculosis, may be cited as examples. Unnecessary detention is as unlikely to occur in a licensed house, as in a fever hospital or sanatorium. The English public has not yet realised this fact, for it is still unable to regard insanity as an illness, requiring adequate treatment. Progress has been and is being made, as is shown by a significant change in the legal phraseology used in the various "Lunacy" Acts. In 1874 a hospital was a "mad-house," in 1890 it became an "asylum," while to-day the term "mental hospital" is in general use and is sure to find its way into future legislation. Certification is disliked by the public, and the Board of Control now allows many patients, though certifiable, to enter licensed houses as voluntary boarders, a system that might with advantage be simplified and extended. To avoid certification, a step designed for the protection of patients, there has again been a tendency of late years for certifiable patients to be received, for payment, into unlicensed premises without any formalities whatever. There can be no doubt that existing licensed houses supply a definite public need; it is also certain that the growth of the reception of patients for payment, into houses which are not open to the inspection and control of a central authority, is highly undesirable and indicates a return to a condition of affairs which all "lunacy" legislation has been framed to prevent.

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VALUE OF THE REFLEXES IN DIAGNOSIS.

Of the various objective methods of investigation pursued by the neurologist in the course of clinical testing, none furnishes him with more valuable information than that concerned with what are described somewhat inaccurately as the "reflexes." The detailed examination of the reflexes, using the term in its wide sense, offers the advantage of providing phenomena which can be visually observed, and some of which, further, the patient is incapable of modifying at will. Another advantage resides in the fact that their state can be determined in the course of a very few minutes, and that by scrutiny in a methodical manner from the eyes to the soles of the feet they can supply the examiner with some knowledge of the functioning of the central nervous system throughout its whole extent. No other system of examination offers such chances of diagnosis at once rapid, yet accurate, provided certain principles are borne in mind and certain precautions taken. In an address by Dr. Risien Russell, an abstract of which appears on p. 1213 of this issue, the diagnostic value of the reflexes is well brought out by clinical illustrations.

For due appreciation, however of data, many of which may be gathered even by the tyro, it is essential that the examination should be conducted with apprehension of the nature of the reflexes, and also of their topographical significance. Leaving aside certain physiological minutiæ, we may say that, in respect of what are commonly termed the tendon reflexes, the phenomenon of a muscular twitch following a smart tap on its tendon depends on the integrity of the reflex arc from the sensory end-organs in the muscle, through the dorsal or posterior roots of the cord to the ventral or anterior horn motor cells, and so by the motor roots back to the muscle. As an essential preliminary the muscle must be in a state of adequate tone or tension, which can be provided passively, in a degree, by putting it somewhat on the stretch. Since, further, the voluntary motor system can to some extent interfere with the activity of spinal reflex arcs, the examinee's attention, if need be, must be directed elsewhere than on the part that is being investigated. With limb in the optimum position, and attention diverted, a tap on the tendon will always, in health, elicit a muscular response. If the "jerk" is absent, a pathological condition exists; this, clearly, may reside in afferent mechanism, spinal centre, or motor efferent. When, therefore, to take a concrete instance, the knee-jerks cannot be elicited if the above precautions are duly observed, the investigator has reached the stage of determining the organic nature of the affection, but he cannot, without further study, localise the mischief more specifically. For example, the knee-jerks may be absent owing to lesions of the afferent limb of the spinal arc (tabes dorsalis), or of the intraspinal section (acute poliomyelitis), or of the anterior horn cells and efferent motor fibres (progressive spinal amyotrophy), or of the end-organs in muscle and muscle substance itself (myopathy). Naturally, one or other of these may suffer in combination (peripheral neuritis). To establish the loss of tendon reflexes is to make a diagnosis of the organic nature of the disease and of its topography, but nothing more. The regional spinal level of the outfall of reflectivity can be determined with ease by ranging from the scapulo-humeral reflex (fifth cervical) to the ankle-jerk (fifth lumbar, first sacral). Other reflexes can be demonstrated both above and below these levels.

The so-called cutaneous reflexes depend for their activity on a different physiological mechanism from that of the tendon-jerks, but the information they provide has similarly a double diagnostic value, topographical and differential. Thus the epigastric and abdominal cutaneous reflexes indicate the physiological condition of the reflex arcs through the spinal cord from about the sixth to the twelfth thoracic segments. The plantar cutaneous reflex shows the condition of the arcs through the lowest lumbar and upper sacral segments. But these and other cutaneous reflexes also provide a clue to the physiological state of the cortico-spinal motor mechanism that is anatomically localised in the pyramidal tracts. Unfortunately, there is a common impression to the effect that the change of the cutaneous plantar reflex from normal flexion of the great toe to extension is indicative of structural changes in the pyramidal tract; for instance, lateral sclerosis. This, however, is certainly not the case. The extensor plantar movement may occur in a limb that is in no sense paralysed to any recognisable degree; it does not conform to degrees of spasticity, for in a spastic limb there may be ankle clonus and a flexor response; it may be purely transient though genuine, as after an epileptic fit. The plantar response may change from extensor to flexor under observation and by means of certain technical procedures, as Babinski himself has shown. In spite of this variability, a plantar response in extension remains a most valuable sign of an organic as opposed to a "functional" physiological change in the normal activity of the pyramidal mechanism. When this change occurs, the movement of the great toe in response to cutaneous stimulation is shifted from one physiological group of muscles (toe flexors) to its antagonists (toe extensors), a shift of peculiar interest and significance. It might be of clinical importance to determine whether there is a similar shift in the case of the abdominal reflexes. Their abolition in organic pyramidal disorder would correspond to the absence of the plantar flexion; is there any movement in the antagonists of the recti abdominis to correspond to plantar extension? As far as we know this point has not been investigated.

There are other reflexes still—the so-called organic reflexes—whose activity requires the integrity of reflex arcs involving muscles that are not voluntary in the usual sense—arcs in which there are components belonging to the sympathetic nervous system. The value of these as aids to diagnosis is very considerable. Armed with these weapons, the clinician can reach a diagnosis with facility in any case, a diagnosis, however, that is topographical rather than pathological. This is the limitation of the method. If the bulbo-cavernosus reflex is abolished, he knows for a fact that there is impairment of function of the arc through the third sacral segment, but not whether he is dealing with tabes dorsalis, sarcomatosis of the cauda equina roots, tumour of the conus medullaris, and so on. If there is reflex iridoplegia, he cannot *ipso facto* and without further testing say whether mesencephalic neurosyphilis, mesencephalic tumour, epidemic mesencephalitis, trauma, or which of half a dozen other pathological states is responsible for the phenomenon. The tendency of the beginner to link the absence of the knee-jerks with tabes, the presence of the extensor plantar response with lateral sclerosis, the Argyll Robertson sign with syphilis, is venial but none the less regrettable. It should be the task of the teacher to inculcate principles rather than particularities. Rightly employed, the use of the reflexes aids as nothing else can in the analysis of neurological symptoms, but as the examiner taps one tendon after another, or stimulates one skin area after another, he should, in his mind's eye, envisage the corresponding segments of the nervous system, with their afferent and efferent paths: only thus will he derive that information which is in truth an "insight" into neural function.

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MODERN ENGLISH.

It is no easy matter for the father who has spent the laborious days and nights of his youth in the study of Addison to understand the tongue of a shingled daughter of these post-war years. In the last decade there has arisen a language, racy and descriptive, that is still partly incomprehensible to many of the older generation. It must be wholly mysterious to the strangers within our gates. This new speech, born when the principles of war-time economy seemed to extend even to words, may be ignored on the judicial bench or in the scholar's study, but it is a power in the market-place. The hour has come for the recording and explanation of this language, and with it the book—the Pocket Oxford Dictionary of Current English.[1] This little dictionary, compiled by F. G. Fowler and H. W. Fowler, well justifies the claim of its compilers to making clear the idiomatic usage of words, although there is a tendency to explain colloquial or slang expressions in equally unclassical language. For example, "to send one to Coventry" is classified into "to combine to cut him,"—possibly a foreigner would be thus justified in interpreting the phrase as meaning "a surgical consultation." As a store-house of modern terms—we hesitate to call some of them English—it is remarkably up to date, "Bradbury," "Fisher," "jazz," and "Pussyfoot" all find a place. One or two medical terms are very loosely defined—for example, "diabetes" as "a urinary disease." But the book is one of the most serviceable of small dictionaries, and a useful feature is the work of the compilers in collecting words that form a series and letting the reader know where to find them.

Annotations.

"Ne quid nimis."

REGULATIONS GOVERNING FOOD PRODUCTS.

The extensive code of regulations under the Sale of Food and Drugs Act, 1908, New Zealand Department of Health, have been considerably widened by new regulations which came into force last September. The requirements which must be complied with are set out in detail, and the conditions which cannot be permitted in connexion with most food products are prescribed with great care. The new regulations deal in particular with bakehouses and the sale of bread and pastry, places for the preparation of meat and made meat products, and for their sale in butchers' and fishmongers' shops, with the transport of meat and fish, with milk and ice-cream, and their prevention from contamination. The detailed attention paid to made-up meat products is of particular interest, since they go far beyond any powers possessed in this country, where it is generally recognised that existing powers are extremely inadequate. In New Zealand, for example, it is an offence for any person to engage in the manufacture, preparation, storage, packing, carriage, or delivery for sale of any food or of any article used or likely to be used as a food, if he is suffering from any communicable disease, or is a "carrier" of any infectious disease, or is suffering from any condition causing a discharge of pus or serum from head, neck, hands, or arms. The preparation and storage of food have to be carried out under conditions which prevent contamination by dust, damp, foul odours, or by rats, mice, or insects. All receptacles for such foods have to be kept clean. The adequate cleaning of drinking vessels and table appliances in restaurants and other premises where food or drink is sold is very fully prescribed. Detailed regulations in regard to the structure of bakehouses are enacted and as to the precautions to be observed in their usage. Places for the mincing, curing, canning, and otherwise preparing of meat (and this word is given an extended application) have to be approved and licensed by the local authority. Such premises must have smooth, impervious floors, be properly drained, internal walls with an impervious surface, roofs dust-proof and painted light colour or calcimined, construction and fittings so as to exclude, so far as possible, rats and mice and flies. Equally stringent are the requirements for butchers' and fishmongers' shops and for the storage of meat and fish in connexion therewith. The adoption of these regulations for meat and made food products in this country would mean the reconstruction of a material proportion of the buildings now in use and a very welcome revolution in practices which are now permitted, and, indeed, cannot legally be prevented.

The New Zealand regulations in regard to milk are more in line with those adopted in this country, but are more stringent. The powers for dealing with the cleanliness and freedom from contamination of ice-cream or ices are considerable and premises used for this purpose also have to be licensed. No fresh penalties are fixed in the new regulations, but presumably the penalty in Section 87 of the existing regulations will apply, and this enacts that the penalty on conviction for a breach of regulations is up to £50, and for a continuing offence not more than £2 for every day during the continuance of the offence. The detailed and explicit character of all these regulations contrast sharply with the bulk of the requirements in force in this country, which are frequently couched in vague terms. No one can read our English food enactments without being struck with what would appear to be almost deliberate looseness of phraseology. Cowsheds are to be "thoroughly cleansed from time to time as often as may be necessary," they have to be "sufficiently lighted with windows," "sufficiently ventilated" with a "sufficient number of openings" to keep the air in the dairy in a wholesome condition. "No person shall sell to the prejudice of the purchaser any article of food or any drug which is not of the nature, substance, and quality of the article demanded by such purchaser." It is worthy of serious consideration whether this loose wording should not be abandoned and replaced by a carefully thought out series of definite enactments setting out exactly what is required. Clearly defined requirements are better for the administrator, more effective for the consumer, and fairer to the trader, who knows exactly where he stands and is not at the mercy of a terminology liable to be differently interpreted in different areas.

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[1] Oxford: At the Clarendon Press. 1924. Pp. 1000. 3*s.* 6*d.*

PASTEUR.[1]

THE pious labours of Dr. Vallery-Radot in producing a complete edition of Pasteur's writings have now reached the third volume, which contains his works on vinegar and on wine. His books and papers are reproduced with the interesting original illustrations, and there are as well a number of short notes and letters to journals in which Pasteur emphasises the correctness of his views and the propriety of giving him credit for them. In these days of reckless and snippetty production, a short course of Pasteur's larger papers would do any scientific worker good, and we can imagine no better discipline, when the edition is complete in seven volumes, than to take it away to a lonely place for the long vacation and read it steadily through. It would have been helpful if the edition could have had a commentary indicating the relation of Pasteur's work to the present state of knowledge on the subjects he dealt with; such a design would certainly have been difficult to execute, but there has been so much specialisation since his day that few people can adequately appreciate the nuances of all his work.

DIABETIC COMA WITHOUT KETONURIA.

IT is usually accepted as a clinical axiom that coma with glycosuria but no ketonuria is not due to diabetes. The converse picture, however, of a comatose patient with considerable ketonuria but no glycosuria is occasionally met with in cases of diabetes. This is usually the result of some stringent measure, such as starvation, which has been adopted in order to render the patient's urine sugar-free. A few cases of diabetic coma without ketonuria have been recorded, and the October number of the *Archives of Internal Medicine* contains an account of one in which the ketonuria was insignificant.[2] Unfortunately, the tests used for the detection of ketone bodies in the urine are not given, nor is there any record of a post-mortem examination. The example quoted is that of a child, aged 9, who was admitted to hospital in a state of coma. The breath smelt strongly of acetone. The urine contained 3 per cent. of sugar and showed a faint trace of acetone, but no diacetic acid. The blood-sugar was 333 mg. per 100 c.cm., and the CO_2 combining power of the plasma, according to the method of van Slyke and Cullen, was 14·3 per cent. by volume, and so very considerably reduced. Further noteworthy points in the case were the failure of the blood-sugar to fall after the administration intravenously of 110 units of insulin (H. insulin-Lilly) within 12 hours, and the fact that the cerebro-spinal fluid, removed immediately after death, showed a very large amount of acetone as judged by the reaction to Legal's test. Death from coma occurred 15 hours after admission to hospital. Despite the large amount of acetone found in the cerebro-spinal fluid immediately after death, the blood just prior to death showed no acetone and the urine contained only a trace. The case is one of exceptional interest and its pathogenesis remains somewhat obscure.

ANÆSTHETICS IN ANIMAL OPERATIONS.

IN the course of a communication on the selection and administration of anæsthetics to animals, delivered recently to the Section of Anæsthetics of the Royal Society of Medicine, Prof. F. Hobday pointed out the curious fact that animal patients, when they have the misfortune to require surgical attention, are better protected by the laws of the land than those of human origin. By the amended Animals Anæsthetics Act, passed in 1919, a long list of operations performed in veterinary surgery were officially scheduled for compulsory anæsthetisation. For the performance of some of these a general anæsthetic is essential; with others a local anæsthetic may be used at the discretion of the operator. In the former class are included, for horses, dogs, cats, and bovines, operations for ovariotomy and laparotomy, amputations of penis, mamma, or uterus, scrotal and inguinal hernia. Moreover, horses must be given a general anæsthetic for operations for quittor, stripping the wall or sole of the hoof, poll evil, fistulous withers, extraction of permanent molar teeth, scirrhous cord, and extensive tumours; dogs and cats for castration when they are over six months old, and bovines for operations for actinomycosis and dishorning if they are over 3 months old. A local anæsthetic at least must be used for enucleation of the eyeball, umbilical hernia, and urethrotomy in all these animals, and the same ruling applies in horses to neurectomy, application of the actual cautery, docking, and trephining in dogs and cats to docking of the tail, and in bovines to rumenotomy and trephining. In regard to castration, he pointed out that the horse, ass, and mule are specially exempted, not on the ground that there is less pain when their testicles are removed, but because of the powerful and successful opposition raised at the time and backed up by influential agriculturists and owners of valuable horses. Their chief reason was that, had the Act become law as it was, the travelling gelder (who is in many districts of England the man who does most of the castrations) would have been unable to have carried on his job—partly because of his ignorance of the proper method of administration of anæsthetics and the risks to be incurred, and partly because of the difficulty (for him) of obtaining chloroform, and the added expense in time and money. Many thousands of horses are operated upon in the standing position every year. Prof. Hobday said that when done expertly the whole operation from start to finish did not exceed two minutes at most, the colt showing so little evidence of after-pain or discomfort that he usually walks right up to the manger and commences to feed at once. Here was a concrete illustration of the part played by the brain of the human in the anticipation of things—in this operation, at all events, the animal had no preliminary dread or anticipation—and here the veterinary surgeon scored over his human colleagues.

The paradox that animals are better protected from unnecessary pain than human beings is substantially true. Lawyers could not apply to inarticulate creatures the ancient maxim, *Volenti non fit injuria* or the idea that the patient's consent may be a defence to a claim for damages. On the contrary, public opinion has driven Parliament into vigorous protective measures. Vivisection is carefully restricted under a system of licences. The Protection of Animals Act of 1911 made it an offence to cause an animal to be operated upon "without due care and humanity." The Animals (Anæsthetics) Act of 1919 went further, as Prof. Hobday pointed out. The Act covers every person who operates, whether qualified or unqualified; the owner of an animal has, of course, some means of distinguishing qualified from unqualified practitioners by means of the familiar system of registration set up by the Veterinary Surgeons Acts. Parliament has never gone so far in protecting human beings from the pain of operations, though professional standards of practice in hospitals and elsewhere (which in part receive official confirmation in the working of a State service of health insurance) happily render legislation largely unnecessary. One might add another discrimination in the treatment of human beings and animals. Under the 1911 Act (replacing the Injured Animals Act of 1907) the police can, on the certificate of a veterinary surgeon, obtain the destruction of an animal which is mortally injured or so diseased or in such a physical state that it is cruel to keep it alive. We have not yet reached the point at which on formal medical certificate human beings can be similarly put out of their misery.

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[1] Œuvres de Pasteur. Edited by Pasteur Vallery-Radot. Vol. III. Paris: Masson et Cie. 1924. Pp. 519. Fr.100.

[2] Report of a Fatal Case of Juvenile Diabetic Coma with Insignificant Ketonuria and a Large Amount of Acetone in the Cerebro-spinal Fluid. By Henry M. Feinblatt, M.D. Archives of Internal Medicine, Oct. 15th, 1924.

CATARACT IN DYSTROPHIC MYOTONIA.

Myotonia congenita or Thomsen's disease is a condition in which any attempt to use certain muscles sets up a rigidity in them so that, for example, when a patient grasps anything he is unable to relax his grasp for an appreciable time. Fifteen years ago the late Dr. F. E. Batten with Mr. H. P. Gibb published a paper[1] showing that certain cases that had been described as examples of muscular atrophy in Thomsen's disease really belonged to a distinct and independent category. Two facts were subsequently discovered—one, that the disease which had been known to be, as a rule, familial, always occurs in some members of a number of families of the same child-rank in relation to a common ancestor; the other, that one of the extra-muscular symptoms that go along with the disease is a form of cataract. In the dystrophic generation some members who are not otherwise affected may have premature cataract alone. Affected members may also have it, and—a very remarkable circumstance—even in other generations of the same stock where there is no member affected with the muscular symptoms cataract is not uncommon. If we go back for two generations before the affected one the cataract is generally of the ordinary senile type. In the generation immediately preceding the one with the affected stock it is generally presenile and in the affected generation always. The subject has recently been investigated by Dr. W. J. Adie, who, in the November number of the *British Journal of Ophthalmology*, suggests that many of the cases which have been described as tetany cataract are examples of this disease. In 1912 J. Hoffmann put forward the theory that all the symptoms, both muscular and ocular, were the result of a general intoxication, due to a disturbance in the organs of internal secretion or of the central nervous mechanisms that control them. Another suggestion is that the toxin that causes the cataract is the result of the breaking down of the muscular tissue. According to Dr. Adie, cases of dystrophia myotonica have been reported from all over the world, their numbers now running into hundreds. He has himself found records of 66 cases in which cataract was a symptom occurring along with the muscular symptoms. In 41 cases he found records of cataract occurring in the affected stock, either in the same or in previous generations, without the accompaniment of muscular symptoms. This evidence, supporting as it does that of many other authorities, makes it clear that a connexion exists between cataract and a congenital constitution, one of whose manifestations is a peculiar affection of the muscular system. According to all observers the cataract begins in the posterior cortex. According to B. Fleischer[2] it ripens fairly quickly to a total soft cataract with a small nucleus at about the same time in both eyes. It is highly probable that the connexion that many of these cases have with a general disease has hitherto passed unnoticed. It would therefore be well if whenever an ophthalmic surgeon comes across a case of presenile cataract he would make careful inquiries with a view of eliciting a possible connexion with muscular cramps and muscular atrophy, either in the patient or in the relatives, near or remote.

BISMUTH TREATMENT OF SYPHILIS.

Dr. H. de T. Shivers,[1] chief of the United States Public Health Service for the Treatment of Genito-urinary Diseases, records his observations on 60 syphilitic patients treated by bismuth, nearly all of whom were in the tertiary stage. The vast majority showed improvement, and with the exception of three cases the reactions following the administration of the drug were rare and not severe. Potassium bismuth tartrate with butyn was the preparation exclusively used; 0·1 g. was the dose given in ordinary cases once a week, and 0·2 g. in more severe cases. A total of 2 g. was administered, and after an interval of four weeks a second course comprising the same number of injections was given. If a third series of 20 injections was needed the rest interval was longer. A few patients with early secondary syphilis who resisted arsenic responded to bismuth. The effect of the drug on tertiary lesions was rapid and in some cases more favourable than that due to arsenic. In neurosyphilis relief of meningeal headache was as prompt as after salvarsan. In cerebral syphilis bismuth was effective in controlling convulsions and in relieving insomnia and nervousness, while in tabes it was more successful in checking the lightning pains than arsenic. Its action on the Wassermann reaction was fairly satisfactory, as 16 patients, or 26·6 per cent., gave a negative reaction after a total dosage of 4 g. None of the patients developed stomatitis, probably because the drug was never given more often than twice a week, and also because they received careful instructions in the proper care of mouth and teeth. Bluish-grey lines on the gums were seen in a few patients receiving 0·2 g. a week. Only three patients developed severe reactions which consisted in severe chill, high fever, nausea and vomiting, and a feeling of marked oppression in the chest, but the occurrence of such reactions is a warning that the administration of bismuth is not without some danger to the patient, and that the same care should be exercised in its use as in the cases of salvarsan preparations.

SCHISTOSOMIASIS IN NATAL.

Urinary schistosomiasis, or bilharziasis, is quite the most common form of parasitic infection in man in Natal. Although the prevalence of this disease has been recognised since 1864, when Dr. John Harley first detected the characteristic terminal-spined eggs in a case of hæmaturia in that colony, its importance from a public health standpoint has once more been emphasised by Dr. C. G. Kay Sharp, Medical Inspector of Schools, Natal, in an article he has contributed on this subject to the *South African Medical Record* of Oct. 25th. The infection appears not to be confined to the native or Asiatic, but is also prevalent in European school-children. The coastal area of the province is heavily infected, especially the river estuaries, where swamps and lagoons form in which the molluscs which act as intermediaries abound. The exact proportion of natives infected with this parasite is difficult to ascertain, since a large number never seek European medical advice, but the incidence amongst women is known not to be high, as they are not permitted to bathe in public places, and so do not risk the danger of infection. Dr. Kay Sharp has collected records of 300 cases of urinary schistosomiasis in school-children, the proportion being 40 out of 300 in an Indian school at Stanger, while in nine European schools 64 cases of hæmaturia were discovered, and it is estimated that in Durban 2·4 per cent. of the male school population is afflicted in this manner. In young persons the hæmaturia is most marked after exertion, especially on a hot day. Symptoms may include headache, digestive disturbances, and giddiness, results of toxic absorption, pyrexia, urticaria, abdominal pain, pulmonary symptoms, and emaciation. The tingling, or itching, of the skin, due to penetration of the cercariæ through the integument, is a fairly common symptom after bathing. Attacks of appendicular colic, due to deposition of the eggs in the appendix, have also been observed. Dr. Kay Sharp's recommendations regarding the prevention of the spread of this form of schistosomiasis are various. Firstly, it should be made compulsorily notifiable to the health authorities, while indigent sufferers should be given free treatment. Every effort should, therefore, be made to persuade sufferers, by means of propaganda and education, to seek treatment. All rivers, spruits, and lagoons which are known to be infected should be advertised to the public, and warning notices erected at public bathing-places. The keeping of domestic ducks, which feed on freshwater snails in infected waters, should be enthusiastically encouraged. It is stated that small minnows, known as "millions," are useful also in this respect, as they are said to feed upon the cercariæ. Certain wild birds, such as ducks, egrets, herons, flamingoes, ibis, and storks which also feed on snails, should be vigorously protected. It has even been suggested that the importation of a bird, known as the Australian mudlark, might be advisable.

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[1] Brain, 1909.

[2] Archiv für Ophthalmologie, 1918 xcvi., 161.

[1] Archives of Dermatology and Syphilology, October, 1924.

INTRA-UTERINE OVARIAN GRAFTS.

The operation of transposing the ovary with its neurovascular pedicle into the uterus is intended to preserve menstruation with the possibility of pregnancy in women after double salpingectomy. In a recent communication[1] read to the Académie de Médecine, Paris, Prof. T. Tuffier brought forward considerable clinical and experimental evidence in favour of this procedure. In his experience the efficiency of the operation is undoubted, although the results are not constant. Since July, 1922, he has performed the operation on 38 occasions; after excluding seven cases operated upon since May, 1924, it was found that nearly 90 per cent. of the remainder had regular periods, sometimes more profuse than formerly and occasionally preceded by painful symptoms. Pregnancy with normal labour was recorded in one instance. There were no deaths, but late hysterectomy was necessitated on two occasions, including one for intestinal obstruction not related to the ovarian transposition; also, one laparotomy was performed for a post-operative hæmorrhagic extravasation. Two other patients ran a temperature of 38° C., which was accompanied by a painful sero-purulent vaginal discharge, and in one a gangrenous ovary was extruded. These accidents were ascribed to imperfections inseparable from the evolution of a new technique, of which a detailed account, illustrated by 14 well-printed plates, appeared recently.[2] The operation includes resection of both tubes, mobilisation of the intact ovary, and its fixation into a previously dilated uterus; the uterine wound is afterwards brought together by three or four interrupted catgut sutures followed by a second series of linen Lembert serous sutures close together. It is necessary to be sure that the ovarian pedicle is not constricted and that peritonealisation is perfect. No definite conclusion can, of course, be drawn from such a small number of cases, nor has sufficient time elapsed to judge of the after-results, but the incidence even of one pregnancy among his 38 cases is of great interest. On the other hand, the preservation of menstruation which may be more profuse than formerly and may be preceded by painful symptoms is not likely to be welcomed by the patient unless she is keenly desirous of embracing even a slender chance of another pregnancy.

A CASE OF LEISHMANIASIS IN RIGA.

Dr. R. Adelheim reports,[3] from the Pasteur Institute of Riga (Latvia), a very carefully investigated case of leishmaniasis in a child of 5. He observes that tropical diseases are always slipping into Europe now and must be kept well in mind by doctors who see puzzling cases. The child's illness had come on insidiously four months before with fever, loss of weight, and anæmia. Dr. Berkholz, who saw her on July 30th, 1921, noted that the spleen was greatly enlarged and hard, and that the liver was slightly enlarged too. A blood examination showed red blood corpuscles, 2,290,000; white blood corpuscles, 4100; hæmoglobin, 40; differential counts taken about that time gave, per cent., lymphocytes, mostly small, 77; neutrophiles, 20 (3 immature, 12 band-form, and 5 segmented nuclei); large mononuclears, 2; no eosinophiles; myelocytes, 1. No malaria parasites could be found, but there were many leishmania parasites in a smear of blood obtained by splenic puncture. Various remedies were tried, but no improvement was observed until antimony tartrate was given intravenously about the middle of September, when she began to pick up rapidly. The red count went up quickly to 4,000,000, the white to 7400, and, per cent. in differential count, there were: lymphocytes, 50; neutrophiles, 40 (2 immature, 26 band form, and 12 segmented nuclei); large mononuclears, 8; myelocytes, 2. By Christmas the child was well, thanks to the antimony. The father was a high Russian official, three months returned from Tashkent, Russian Turkestan, where the family had lived comfortably, and the little girl had hardly been at all in touch with native children. It appeared, however, that they had brought back with them a German dog, in bad health, and always getting thinner. No leishmania were seen in a smear of its blood either, but, at the post-mortem, the spleen was found much enlarged, the liver slightly, there were characteristic abdominal hæmorrhages, and many parasites in the spleen smear. With the spleen juice Dr. Adelheim injected white mice subcutaneously, and some of them contracted the disease. The author is of opinion that the disease is not carried by a parasite such as a flea, but most likely by the stools. This question might well be the subject of a research by a medical officer in the Mediterranean, where this disease is tolerably frequent.

THE MEDICAL DIRECTORY, 1925.

The eighty-first annual issue of the Medical Directory[1] appears a month in advance of its date, while many of the corrections which it contains are quite recent. A sign of the times is the omission of the Dental Section, after an association of 57 years' standing, owing to the fact that the publishers propose to issue shortly a separate directory of graduates and licentiates in dental surgery, intended to fill the want felt by many people for an inexpensive self-contained dental directory. The space so saved seems likely to be utilised in other ways, for on pages lxxxvi. and lxxxvii. will be found the first instalment of a list of members of the British Association of Certificated Masseurs, which is to be increased in a later edition. There is no doubt that further additions of names and addresses of other groups of medical helps would be useful to practitioners. Other features of the Directory remain unchanged, except that in the list of titles conferred upon members of the medical profession appears for the first time the name of a woman. The numerical summary records a total of 49,351 names, showing a substantial increase in every section except that of the Services, where the 1922 figure of 3475 names looks unlikely to be again reached. In round numbers, the additions in London are 250, in the Provinces 500, in Wales 80, in Scotland 550, in Ireland 200, abroad 300. The section of British Spas and Climatic Health Resorts, fresh and informing though it is, loses prestige from the omission of the corresponding section on foreign resorts which used to appear. The only misprint we have noticed is in the title of a well-known medical official, but it is unfortuate that the names of Ministers of the Crown should lready be out of date. It might be better, in a work f reference of this kind, to avoid including the names f those whom political fortune may displace. In its resent issue the Directory continues to fill a worthy ôle.

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[1] Bulletin de l'Académie de Médecine, 3e série, tome xcii., No. 33. Paris: Masson et Cie.

[2] Surg., Gyn., and Obst., October, 1924, p. 401.

[3] Archiv für Schiffs- u. Tropen-Hygiene, September, 1924, xxviii., 9, 367.

[1] Messrs. J. and A. Churchill. 30s.

UNDER the Dangerous Drugs Acts the Home ecretary has made regulations, dated Nov. 20th, a) prohibiting, except under licence, the diversion f raw opium or dangerous drugs passing in transit hrough a port in the United Kingdom to a destinaion other than that to which they were authorised o be consigned from the country of export; and (b) nodifying, in the case of prescriptions for dangerous rugs which are given on the official National Health nsurance form, the requirements to be observed efore the prescription may be dispensed.

Modern Technique in Treatment.

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XCIX.

THE TREATMENT OF VERTIGO.

VERTIGO or giddiness is a peculiar disturbance of quilibrium in which the patient experiences a feeling f movement either in himself or in surrounding objects. n severe cases there may be staggering or reeling, or he patient may even fall to the ground.

Equilibrium is maintained by the properly adjusted onic contractions of certain muscles. It is controlled y a centre situated in the cerebellum. From the skin, nuscles, joints, eyes, and labyrinth afferent impulses ass to the cerebellum and are there transformed into fferent impulses which travel through the superior erebellar peduncles to the red nuclei. From the red uclei impulses pass to the lower motor neurones, so hat the contractions necessary to maintain equilirium are ensured. Although afferent impulses then re sent from many parts, the most important are those rom the labyrinth, and thus it is that vertigo is so requently associated with aural disease. For this eason it is convenient to classify cases of vertigo nto (1) those associated with aural disease, (2) those n which no aural disease is discoverable.

Vertigo Associated with Aural Disease.

This group comprises a large number of cases. In ll the vertigo is due to disturbance in the labyrinth; n many it is the result of an irritative lesion in the xternal or middle ear—for example, wax in the xternal auditory canal, or suppuration in the middle ar. In others, usually the more severe, it is the esult of an actual non-suppurative destructive lesion n the internal ear, the exact nature of which is not usually ascertainable. Very severe vertigo is also aused by sudden extension of a suppurative process rom the middle to the internal ear, the treatment of which calls for immediate surgical interference. It s therefore necessary, in all cases of vertigo associated with deafness, to obtain the opinion of an aural surgeon hat the precise condition of the ear may be determined. In a number of cases the vertigo is paroxysmal and is associated with vomiting in addition to deafness; this triad of symptoms—namely, vertigo, deafness with tinnitus, and vomiting—constitutes Ménière's syndrome. In these cases the vertigo may be so sudden and so severe as to cause the patient to fall as if felled, though in Ménière's syndrome there is never any loss of consciousness, an important distinction from petit mal and fainting.

Where the vertigo is associated with a lesion in the external ear, such as a plug of wax in the external auditory canal or a severe inflammatory lesion or with suppuration in the middle ear, the treatment is directed to the local condition.

The treatment of vertigo the result of a non-suppurative lesion in the labyrinth demands attention: (*a*) during an attack, (*b*) between the attack as a preventive measure. During the attack the patient is put to bed with the head slightly raised, hot-water bottles are put to the feet, and calomel, gr. v., administered. As a preventive measure between the attacks the patient should be warned to avoid sudden turning movements of the head, undue exertion, and the watching of quickly passing objects as experienced by looking out of the window whilst travelling in an express train. Sometimes even gazing at moving pictures may incite an attack. Constipation should be prevented, and tobacco and alcohol used only in moderation. The most efficacious drugs are iodides, bromides, strychnine, and quinine. In any particular case it is difficult to say which of these is likely to be most successful, though in those with a neurotic temperament I think bromides are indicated, whilst strychnine is perhaps the most beneficial in debilitated individuals. On the whole, however, I believe that quinine in small doses with or without bromides will be found to be the most valuable drug in warding off attacks of vertigo of this class. A useful prescription is:—

℞	Quininæ sulph.	gr. ½
	Ac. hydrobrom. dil.	♏xv.
	Tinct. aurantii	♏xx.
	Aq. ad	℥ss.

℥ss. night and morning.

Vertigo Unassociated with Aural Disease.

Vertigo in these cases may be the result of disturbance of afferent impulses from sources other than the labyrinth. This is probably the explanation of vertigo occurring when a person walks from a hard on to a soft surface, resulting in a disturbance of afferent impulses received by the cerebellum from the deep structures—e.g., joints. Again, vertigo may be due to ocular disturbances, generally the result of paralyses of external eye muscles associated with diplopia, but in a few cases in which there is no paralysis and in which dizziness with headache occurs after prolonged use of the eyes, it would appear that the dizziness is due to some error of refraction, for cases occur where examination of the eyes has revealed some error of refraction, and the wearing of suitable glasses has benefited the condition. Neurotic vertigo is fairly common, such, for example, as vertigo occurring in certain individuals when they get into a crowd or into a large open space, or when they find themselves in a confined place, such as a theatre. Fear, no doubt, plays an important part in these cases. Patients with neurotic vertigo rarely fall. This type is best treated on the general lines laid down for the treatment of neurasthenia aided by some sedative drug such as bromide of potassium or sodium and valerian. Vertigo occurring with epilepsy and migraine calls for no special treatment outside that employed for the relief of the nervous condition with which it is associated. In migraine the eyes must be carefully examined for some error of refraction, and any error found corrected with suitable glasses. In many cases no other treatment is necessary. In others considerable benefit may be derived by taking pil. quininæ, gr. i., twice a day, combined with a diet restricted in animal food and strict instructions to the patient to eat sparingly. Where the attacks of migraine occur at fairly regular intervals I believe that, in addition to the above treatment, luminal, gr. ii., each night for a few nights before an attack is expected is beneficial.

Vertigo is also associated with certain organic diseases of the central nervous system, but I know of no special treatment which affords relief in these cases. It occurs notably in cerebellar disease, when it may be central in origin or due, as in cases of cerebral tumour, to a general increase in the intracranial pressure. It may also be met with in disseminated sclerosis and in general paralysis of the insane. Giddiness is a symptom commonly complained of in all forms of anæmia, and does not call for any treatment other than that employed for the relief of the anæmia. Another common cause of vertigo is some gastro-intestinal disturbance, such as dyspepsia and constipation. It is probably due to the sudden discharge into the blood-stream of poisons manufactured in the alimentary tract and is relieved by giving calomel, gr. v., followed by a saline purge. Toxic vertigo due to alcohol and tobacco is well recognised and is relieved by removing the cause.

Disturbance of Intracranial Circulation.

Perhaps the commonest cause of vertigo is some disturbance in the intracranial circulation resulting in either hyperæmia or anæmia of the brain. Cerebral hyperæmia is probably the explanation of the giddiness which occurs associated with hot flushes at the menopause, though in most instances where vertigo is due to disturbances in the cerebral circulation it is the result of anæmia of the brain consequent upon sclerosis of the cerebral arteries. Associated with the vertigo in these cases there is usually a high blood pressure, but in a few cases, owing to myocardial degeneration, the blood pressure is below normal. In either case, when the vertigo is severe it is a grave omen. In the one type it is often the forerunner of a stroke and in the other of sudden cardiac failure. The treatment is somewhat different in the two types of cases.

(*a*) *Where the blood pressure is high* the patient should avoid all strenuous mental and physical effort; if possible he should retire from active business. He should be warned against stooping or sudden alterations in position, but gentle exercise should be allowed. The diet should be restricted as regards meat, and two or three days a week should be meatless. Any meat that he takes is better grilled or cut from a joint rather than stewed. Beef tea, gravies, and meat extracts should be forbidden. The bowels should be kept relaxed but not purged. Suitable aperients are phenolphthalein, 2–4 gr., phenolax, 1 or 2 wafers; in certain cases a small dose of a saline aperient taken each morning is most beneficial. The object should be to produce two relaxed evacuations daily rather than an occasional purging. Alcohol and tobacco must be used only in moderation. Iodide, either as potassium iodide or in the form of iodalbin, iodicin, or collosol iodine, is, I believe, the most useful drug in this type of case. It should be given in moderate doses over a long period. In some severe cases I have seen benefit derived from taking iodalbin, gr. v., three times a day and erythrol tetranitrate, gr. ½, night and morning.

(*b*) *Where the blood pressure is low* exercise must be more curtailed, but the same rigid precautions are not necessary as regards the diet; in fact, it is better to allow meat to be taken daily. These cases are more difficult to relieve than are those with a high blood pressure. Medicinal measures are disappointing, though some patients are benefited by giving iodide in some form in moderate doses three times a day and a digitalin granule, 1/600 gr. (Nativelle), night and morning; others obtain considerable relief by taking a Gélineau's dragée night and morning.

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LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—The monthly meeting of this Association will be held at the Elizabeth Garrett Anderson Hospital on Tuesday, Dec. 9th, at 8.15 P.M., when a paper will be read on Frequency of Micturition in Women by Miss E. C. Lewis, F.R.C.S.

Special Articles.

MEDICINE AND THE LAW.

STOPES *v.* SUTHERLAND: HOUSE OF LORDS' DECISION.

THE judgment delivered in the House of Lords in the appeal by Dr. Marie Stopes against the decision of the Court of Appeal in her action for libel against Dr. H. G. Sutherland was referred to in THE LANCET of Nov. 29th, p. 1137, in connexion with the question, not raised in the action, of providing teaching on contraception in medical schools. In the recent appeal the House of Lords were asked to review, and did in fact reverse by a majority, the decision of the Court of Appeal, the question at issue being in substance what ought to be the judgment that in law should follow from two answers given by the jury at the trial before the Lord Chief Justice, those two questions having been put to them. Two other questions were answered by the jury to the effect that the words published were defamatory and that the damages, if any, should be £100, but the questions and answers referred to the House of Lords were the second and third—viz.: (2) Were the words true in substance and in fact? Yes. And (3) were they fair comment? No. Upon these findings, which to many will seem inconsistent, the Lord Chief Justice entered judgment for the defendant, Dr. Sutherland. The Court of Appeal by a majority held the plaintiff, Dr. Stopes, to be entitled to judgment for damages and costs. The House of Lords, in judgments of which the principal are summarised below, held that the Lord Chief Justice had decided rightly and restored his judgment.

The Lord Chancellor, Lord Cave, after stating the facts and pointing out that the House was not concerned with the ethics of contraception, defined the points to be determined as being (1) the meaning and effect of the verdict, and (2) whether there should be a new trial. The jury's answers (2) and (3), given above, appeared at first sight to be inconsistent. The plea that the words complained of were true in substance and in fact ("justification") meant that all those words were true and covered not only the bare statements of fact contained in the alleged libel, but also "any imputation which the words in their context may be taken to convey" (Collins, Master of the Rolls, in Digby *v.* *Financial News* [1907] 1 K.B. 509). It had been held to follow from this that if a verdict was found in a defendant's favour on a plea of justification there was no room for any discussion of the plea of "fair comment." "The plea of fair comment does not arise if the plea of justification is made good" (Lord Loreburn in Dakhyl *v.* Labouchere [1908] 2 K.B. 325 n.). Although, however, this might be the ordinary rule, Lord Cave agreed with the Court of Appeal that its application in the present case was difficult. The Lord Chief Justice in his summing-up undoubtedly had drawn a distinction between fact and opinion, and while he had carefully instructed the jury to deal with the "real sting of the matter" and the "pith and marrow" of the statements of the defendant, he appeared to have invited them to deal under the heading of fair comment with those portions of the matter complained of that were expressions of opinion upon facts alleged and proved. He (Lord Cave) would deal with the verdict on that assumption.

The alleged libel might be divided into three parts: (1) That the plaintiff was taking advantage of the ignorance of the poor to submit them to experiments. As to this Dr. Sutherland had explained his meaning to be that the poor were made the subject, not of surgical experiments at Dr. Stopes's clinic, but of a social experiment which was contrary to the laws of nature. This was a question of fact, and the jury had found the statement to be true. (2) It was complained that the defendant alleged that working women were instructed in a method of contraception, which had been described by Prof. Louise McIlroy as the most harmful method of which she had had experience. As to this the jury were instructed that they must not only find that Prof. McIlroy had declared this method (the use of the check pessary) to be harmful and dangerous, but must further find that it was so in fact. This also was a statement of fact, and was found to be true. The jury had before them evidence on which they could find that methods of contraception recommended by the plaintiff might cause injury, particularly with regard to the use of the "gold pin," which several witnesses had said was calculated to produce abortion. (3) The defendants in effect said that the literature published by the defendant was no less obscene than that for which Charles Bradlaugh was prosecuted, and that it infringed the criminal law. This also was found to be true by the jury, and passages in the plaintiff's books were evidence that could be considered as justifying the finding. This point again was treated as a question of fact at the trial.

The Lord Chancellor asked, if the above charges had been found to be true, what remained in the alleged libel to which the description of "unfair comment" might be taken as having been applied by the jury. In the Court of Appeal two statements had been referred to as matters of opinion upon which might arise a question of "unfair comment": (1) That regarding "the decent instincts of the poor," and (2) the expression "monstrous campaign." Possibly there might be added the expression as to the offence of Charles Bradlaugh being a less serious one. Was there, then, evidence or material upon which a reasonable jury could find that these expressions of opinion, or any of them, constituted unfair comment, the other charges having been found true in substance and in fact? This was a question for the Court, which had to determine whether the document under consideration was capable of being a libel (Collins, Master of the Rolls, in McGuire *v. Western Morning News* (L.R. 2 K.B., p. 111)). He did not think that there was any such evidence. The first appeared to him to express the opinion of the writer as to the practice of birth control itself, and not as to the plaintiff's methods of advocating it. He did not see how the reflections on the plaintiff could be said to be unfair having regard to the facts found to be true. "Monstrous" was undoubtedly comment, but if, as the jury had found, the defendant was justified in saying that the campaign was carried out by circulating obscene and criminal matter, the epithet "monstrous" could add nothing to the libel, nor could the comparison with the case of Bradlaugh. The expressions were mere shadows of the substantive charge of which no separate justification was required. His Lordship referred to Edwards *v.* Bell (1 Bing. 403), Morrison *v.* Harmer (3 Bing. N.C. 759), and Cooper *v.* Lawson (8 A. and E. 746). It appeared to him that the case under consideration fell within those decisions, that the expressions complained of as comment added nothing to the substantive charge, and that consequently there was no evidence on which a rational verdict of unfair comment could be founded. Consequently the judgment of the Court of Appeal could not stand, and he was further of opinion that there was no good ground for ordering a fresh trial on the ground of misdirection. The order of the Court of Appeal would be discharged, and the judgment of the Lord Chief Justice restored with costs above and below.

Lord Finlay, in a concurring judgment, said that it seemed to him to be impossible to hold that the bounds of fair comment were exceeded by an expression of honest opinion to the effect that the practices advocated by the plaintiff were revolting to the healthy instinct of human nature. The aversion on this ground from such methods was old and widespread. Reference had been made in argument to passages in the plaintiff's books, which were of such a nature that they had not been read aloud. The books had a wide circulation, and in his opinion were calculated to have a deplorable effect upon the young of both sexes. It would, in his Lordship's view, be absurd to say that the epithet "monstrous" exceeded the bounds of fair criticism, or that it was not fair comment to imply that such passages, as had been pointed out, might be held to aggravate the criminality of obscene libel. Lord Finlay regarded it as unfortunate that the plaintiff, a doctor of philosophy, should apply to herself the title of doctor in connexion with her clinic, as to do so must lead many of those attending the clinic to think that the person at the head of it was a Doctor of Medicine.

Lord Shaw of Dunfermline and Lord Carson delivered judgments, in which they concurred with the Lord Chancellor and Lord Finlay in holding that the appeal of the defendant should succeed.

Lord Wrenbury, in delivering a dissenting judgment, referred to the interest taken by many thoughtful persons in the question of birth control during the last 15 or 20 years, and to the work of the National Birth-rate Commission, which sat from 1913 to 1916, and after being reconstituted took evidence in 1918 on questions which included matters dealt with in the plaintiff's books. The plaintiff herself was a member of the Commission, and when the Birth Control Committee of the Commission met on Nov. 7th of the present year, Lord Wrenbury observed, Lord Dawson of Penn was one of those who gave evidence. He mentioned this in order to emphasise the grave importance of the question of birth control, to parents and prospective parents, of personal importance to those working among the poor of public importance, and of national importance to those who had at heart the welfare of the nation. There were what some thought to be grave reasons affecting individual cases for the employment of birth control. Others thought that in no case ought such control to be exercised. He expressed no opinion as to which were right, but strong feelings were roused by the controversy, and hard language might well be used without causing surprise. It was for the jury to decide whether such language, if used, was libellous. The jury had all the evidence, including the plaintiff's books, before them, and the question was for them to decide. Expressing no opinion himself on the matter, he could not say that 12 reasonable jurors might not decide that the expressions used as to "experiment on the poor," and as to a "monstrous" campaign amounting to a crime were not justifiable, especially as the plaintiff had been admitted by her opponents to be bona fide seeking to assist her poorer sisters. In his opinion the majority of the Court of Appeal were right in upholding the verdict upon the answer to the third question, and in giving judgment for the plaintiff in accordance with that verdict. The jury had found in the plaintiff's favour on the question of fair comment and assessed damages, and if their findings were not to have effect, then in his view it followed that there had been, by reason of misdirection, no proper trial of the issue of fair comment, and this would entitle the plaintiff to a new trial.

The judgment of the Court of Appeal was accordingly reversed. Since then we are informed that Dr. Stopes has presented a petition to the Lord Chancellor.

THE MISUSE OF PRESCRIPTIONS.

At a recent inquest near Llanelly, upon the body of a married woman, 43 years of age, the jury returned a verdict that "the death was due to the taking by misadventure of an overdose of medicine containing strychnine, associated with the low physical condition of the deceased due to the morphine, in accordance with the testimony of Dr. Owen Williams. We are of the opinion that no criminal neglect is due to anyone, but that greater care should be exercised in future in labelling medicine containing poison." The story leading up to the death of the deceased, which was the occasion for the above finding, was contained principally in the evidence of a druggist, who stated that for several years he had supplied the deceased with bottles of medicine in extraordinary quantities, for which frequently she used to send her children or the children of neighbours. A great deal of this medicine was ostensibly under a prescription. The prescription provided for 2 drachms of morphia, but the druggist, recognising the craving of his customer for this drug, reduced the morphia to 1½ drachms, and finally, when she asked that the medicine should be supplied in larger quantities and in greater strength, gave her no morphia in two out of the three bottlesful that she was consuming daily. At a later period she was having three bottles a week of the medicine containing morphia, her purchases being made up to three bottles a day with tonics and purgatives. Among the tonics she used was one containing strychnine, of the danger of which he warned her, but there was no warning written on the bottle last sold to her before her death. Medical evidence based upon the post-mortem examination was given to the effect that death was due to strychnine and not to morphia.

The law does not forbid unlimited repetition in the making up of a prescription, and probably such a limit in all cases would be resented by the public, however desirable it may appear to the medical profession. It would be easier to impose and to enforce limits to the use of any prescription containing certain specified drugs. Probably nothing, except, possibly, the efforts of relatives, would have hindered the woman in this case from drugging herself.

AN ERROR IN DISPENSING.

An action of an unusual character was tried recently by Lord Darling and a special jury. The plaintiffs were Mr. R. R. Boyd and his young son, Geoffrey R. Boyd, and the defendants, Messrs. Savory and Moore, Limited, were sued on the ground of their alleged negligence in dispensing a prescription for the use of the son. In defence they denied negligence, and pleaded that they had acted reasonably in reading the prescription in question, and further that the plaintiff, Geoffrey Boyd, had suffered no damage through their act. Geoffrey Boyd, 22 years of age, was from the age of 11 years subject to epileptic fits, and in 1922 Dr. Henry Head gave for his use a prescription for medicine to contain 1½ gr. of luminal sodium. The defendants made up this prescription at various dates from May, 1922, to March, 1923, and misreading the amount of luminal sodium ordered, always compounded it with half a grain, instead of a grain and a half. The plaintiffs alleged that through this error the youth's recovery was delayed at a time when he was expecting to go into his father's business, and damages were claimed accordingly. Dr. Head, called on behalf of the plaintiffs, described luminal sodium as a "tricky drug," and in answer to a question from Lord Darling said that it was impossible to tell whether a grain and a half would have had any influence in the patient's favour. He explained the circumstance in which he had prescribed it, and in reply to Mr. Eastham, K.C., counsel for the defendants, stated that he was unable to say that the omission of a grain of luminal sodium every night for ten months, the period of the prescription, had had any material effect on the course or progress of the epilepsy. As far as he could say the omission had done no harm.

After reference by Mr. Eastham to the "rather misleading" character of the writing of the prescription, Dr. C. Hinds Howell gave evidence in support of the view that the absence of a grain of luminal sodium had made no difference to the epilepsy, and said that half a grain was a common amount to prescribe. Sir William Willcox agreed, and added that he had first dealt with luminal sodium as a hypnotic in lectures in 1913. It was first used for epilepsy at some time during the war, but was very often ineffective with regard to epilepsy in any dose. In reply to questions raised by the jury, Sir William Willcox said that there was no recognised cure for epilepsy, and that continued use in large doses of such a drug as luminal sodium might cause mental degeneration. He should not attribute an increase in the plaintiff's fits to the diminution in the luminal sodium administered to him.

The jury were unable to arrive at an agreement as to their verdict and were discharged. Mr. Justice Darling gave judgment for the defendants with costs, on the ground that there had been no evidence to go before the jury of any damage resulting from the alleged negligence, even if there had been negligence. A stay of execution was granted in view of a possible appeal.

ROYAL SOCIETY OF MEDICINE.

THE ANNUAL DINNER.

THE annual dinner of the Royal Society of Medicine was held on Nov. 26th at the Hotel Victoria, London, Sir StClair Thomson, the President, presiding over an assembly of some 400 persons. Since their election to the Society women have, of course, been present at the annual dinner, but necessarily only in small numbers. The innovation on this occasion was the permission to members to bring guests of either sex, and the result was to make of the gathering a large series of small dinners flanked by one long, high table.

After the loyal toasts, Sir Auckland Geddes proposed the Prosperity of the Royal Society of Medicine, laying stress on the fact that the great work of the Society, though done directly for the profession, resulted in enormous benefit to the public. The general facilities of the Society, and especially the library, enabled a large mass of doctors to keep abreast, either by the work of the sections or by the consultation of references, with their science. In speaking of the Transactions of the Society, he pointed out that, while there were 4000 members on the roll, their communications to the proceedings were included in 2000 pages. He raised considerable laughter by wondering when the House of Commons would have rules whereby the average in "Hansard" was only half a page per M.P.

Sir StClair Thomson, replying for the toast, pointed out that the motto of the Society was "Life is not worth living if it is not lived well," and commenced his speech by a versicle regretting that speeches had to be made, for, he said :—

"I like the talk that comes between
The pottage and the peaches ;
But hail with a dejected mien
The speeches."

After a criticism of the inarticulateness of Englishmen he paid an eloquent tribute to the prevision of the late Sir Andrew Clark and the devoted service of Sir John MacAlister who, he said, was absent upon his doctor's strict directions. "The ideal," he said, "to which we have attained was foreshadowed by Sir Andrew Clark when he held in 1892–93 the position of President. His wise imagination bodied forth the objects of our existence in the words : 'A Royal Academy of Medicine is calculated to bring together for their common help all the investigators in the various departments of medicine.' Sir Andrew Clark died a few months after, but 15 years had to pass before what he had imagined attained a local habitation and a name. And thereby hangs a regret. For he, who wielded the English language so gracefully, had suggested the title of 'Academy' for our body, just as Mr. James Berry at this table in 1922, when speaking as President of the Medical Society, said that, being a collection of societies, the title of 'Academy' was much more appropriate. That may come yet. But it is only a family matter whether we call ourselves a society or an academy. This amalgamation, shadowed orth by Sir Andrew Clark, was the endorsement of a scheme at which another man had toiled for years; not a medical man, mark you, but one who loved us as a brother and in return we all wear him in our heart's core, aye, in our heart of hearts. He had worked at it for more than five years before Sir Andrew died; he toiled on it for 15 more years before it was accomplished; he has continued another 17 years to better what he had already bettered. He has served this Society for 37 years. It has been his life's work, and he has given his life to it. It is only his doctor's strict orders which prevent our perpetual secretary, Sir John MacAlister, from being with us to-night."

The President then acknowledged the valuable services of the hon. librarians, Mr. Walter Spencer and Sir Humphry Rolleston, and the hon. treasurers, Mr. C. H. Fagge and Dr. Farquhar Buzzard, adding that a great debt was due to Dr. Arnold Chaplin for undertaking to catalogue, mount, and index the Society's fine collection of over 4000 prints. In thanking Sir Auckland Geddes for the terms in which the toast of the evening had been given, Sir StClair Thomson said: "You, Sir, in coming here to-night and in proposing the health of our Society, have, I assure you, added to your large troops of friends in the two hemispheres. You need not have taken the chairmanship of the Food Inquiry to gain the shortest way to our hearts. We all know and are proud of your record. We have not forgotten that you went through the South African War as a lieutenant in the Highland Light Infantry; that as recently as 1908 you took your M.D. with the gold medal at Edinburgh, and that little more than 10 years ago you were making models in the dissecting room of McGill University in Montreal. Then came your last crowded ten years of glorious devotion to your country—Member of Parliament, Director of Recruiting, Minister of National Service, Minister of Reconstruction, President of the Local Government Board, President of the Board of Trade, Brigadier-General, gassed in France, Principal of McGill University, and His Britannic Majesty's Ambassador to the United States. And you are not yet 46! In France the highest honour that can be given a man is to put on record that he has deserved well of his country. Anyone who visits the Hôtel de Ville in Paris will see that in the last ten years only two names have been added to the lists on the walls—those of Clemenceau and Poincaré. Underneath them are written the simple and thrilling words, 'Ils ont bien mérité de la patrie.' You have deserved well of your country; your profession is proud of you; this society is most deeply grateful to you."

Sir George Blacker proposed the Health of the Guests in a deliberately light vein, and referring to the possession by women of the Parliamentary franchise, said that Sir Douglas Hogg's electoral campaign had led to the unheard-of situation in Harley-street and Wimpole-street that doctors were seen abroad with their wives. Until that occasion it seemed that the medical inhabitants of those streets could never appear with their wives, some of the men being too busy, and the others being engaged in pretending that they were too busy.

Sir Douglas Hogg, the Attorney-General, replied, and pointed out that his profession and that of medicine were the two strictest trade-unions in the country, and had this in common, that their unionism was non-political, while the difference in status was indicated by the fact that doctors, it seemed, could be proceeded against for lapses of conduct, when lawyers enjoyed an immunity owing to the fact that they had taken care to make the laws. Speaking as Member for Marylebone, "a most important medical constituency," he viewed with admiration the amount of gratuitous work which was done by the medical profession, and he wished that the poorer people of the country could receive the same service from lawyers, inasmuch as, during his tenure of office as Attorney-General, he had seen many cases in which free legal assistance was needed almost as badly as free medical assistance.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Measles and Whooping-cough in Edinburgh.

OWING to an outbreak of measles and whooping-cough in Edinburgh a letter was circulated to local practitioners by the medical officer of health. In this notification is invited of first cases occurring in any family and payment of notification has been approved by the town council. The letter points out that the object of the notification is to inform the public health department of the existence of cases of measles or whooping-cough, so that home visitation by qualified fever nurses may be carried out. If, however, a practitioner does not consider it necessary or desirable for visits to be paid by a nurse, a statement to this effect is to be added to the notification form. Where home environment is found to be faulty or likely to be prejudicial to the health of those affected, removal to hospital will be undertaken. The letter terminates with an appeal for coöperation in order to reduce the death-rate from these diseases, especially among children under 5 years of age. Since the adoption of this scheme of notification, 105 cases of measles and 113 cases of whooping-cough have come under notice. As long as the epidemic was confined to the Leith area, where apparently it had origin, one nurse was able to overtake the necessary visits, but with the extension of the diseases to Edinburgh, it was essential for a second nurse to be employed. Up to the present the results from home visiting have not been very encouraging, and in cases where removal to hospital has been considered advisable a certain amount of opposition from parents has been encountered. In cases of scarlet fever or diphtheria no protests have been offered to the removal of children to hospital, but in the case of measles and whooping-cough, parents, not realising the dangers of these conditions, are often reluctant to allow a child to go to hospital, considering home treatment quite sufficient. An endeavour has been made to surmount this difficulty by means of propaganda. A statement is made to the press by the medical officer of health in which he points out that measles and whooping-cough in young children cause a greater number of deaths than diphtheria and scarlet fever, though the two latter are looked upon as much more serious maladies.

Edinburgh Royal Infirmary.

Some interesting details with regard to the financial position of the Edinburgh Royal Infirmary were given on Nov. 26th at the sixth annual meeting of the League of Subscribers, which was held at the Oddfellows' Hall, Forrest-road, under the presidency of Mr. James Campbell. A report submitted by Mr. Russell Paton, the organising secretary, showed that the revenue obtained by systematic collections at public works and places of business in the city and country districts amounted to £20,904, or an increase of nearly £560 over subscriptions obtained last year from similar sources. From reliable estimates it would seem that the individual membership of the League is now about 73,300 for Greater Edinburgh and 23,200 for country districts, an increase of some 2500 over last year's figures. During the year 152 new groups have been added to the League. The workers' contributions from all sources have been estimated at £40,000 per year, which shows how well the work of the institution is appreciated by the working classes. The total expenditure of the infirmary for the past year, it was stated, amounted to £127,500, or an increase of £7700 compared with the previous year. Against this, however, must be placed £78,900 in legacies. An interesting item in the report was the fact that the salaries of the senior nurses had been substantially increased. Reference was made to the offer of £30,000 by the Rockefeller Trust for the erection of a clinical laboratory in the infirmary grounds. It has been decided to accept the offer, provided the laboratory becomes the absolute property of the infirmary.

At the 243rd anniversary dinner of the Edinburgh Merchant Company held in the Company's Hall it was announced that the Company's Education Board had resolved to give the management of the Royal Infirmary an opportunity of acquiring the buildings and site of George Watson's College. The members of the Company must be congratulated on their generosity, for the offer involves the finding of a new site for the school. Throughout its existence of 243 years the Company has had a reputation for its public spirit.

Aberdeen Medico-Chirurgical Society.

The annual business meeting of the Society was held on Nov. 20th, when the following office-bearers were elected: President: Dr. Peter Howie; Vice-President: Dr. James Crombie; Secretary: Dr. H. Edgar Smith; Treasurer: Dr. George Rose; Editor of Transactions: Mr. G. H. Colt; Librarian: Dr. W. Clark Souter; Recording Secretary: Dr. H. Ross Souper; Assistant Secretary: Dr. Robert Richards; Members of Council: Dr. A. G. Anderson, Dr. G. M. Duncan, Mr. F. K. Smith, and Dr. H. Ross Souper.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Belfast: The Robert Campbell Oration.

THE second Robert Campbell Memorial Oration was delivered in the Medical Institute, Belfast, on Nov. 20th, by Dr. Thomas Houston. Dr. J. Singleton Darling, President of the Ulster Medical Society, occupied the chair, and there was a large attendance of members of the profession from Belfast and Ulster. Dr. Houston, after paying a personal tribute to the late Mr. Campbell, then gave his address on the subject of

Addison's Anæmia.

He first called attention to Thomas Addison's original account of the disease and showed how this masterpiece of clinical observation would be handed down to all future students of medicine. Since Addison's time certain additions to our clinical knowledge of the disease had been made. Hunter deserved the credit of originating the intensive study of the true nature of this remarkable form of anæmia. His researches led him to the view that Addison's anæmia was a specific infective hæmolytic disease, and that the source of the infection was the alimentary canal and the seat of the blood destruction the portal circulation. Hurst had added a predisposing factor to this almost accepted theory of Hunter's, emphasising the view that the achlorhydria which always preceded the onset of the disease was generally congenital and predisposed to the specific infection of the alimentary canal by streptococci or other organisms. The older theories of Cohnheim and Ehrlich were still adhered to by some able writers on the subject. More work required to be done before any of these theories could be generally accepted. Mr. H. Gilford had called attention (THE LANCET, Jan. 13th, 1923, p. 64) to his view that Addison's anæmia might be due to a premature senescence of the blood-forming organs. He pointed out that one of the main objections to such a view was the supposed rarity of the disease in old age. It was questionable, however, whether the disease was so rare in old age as the literature of the subject would lead us to suppose. In old age the patient was not considered a fit subject for clinical investigation and every ailment was ascribed to senile decay. Dr. Houston had seen quite a number of cases of Addison's anæmia in patients over 70 years, and believed that many more would be found if they were looked for. This view would also fit in with certain recent work on blood destruction by Louisa Ashby, who came to the conclusion that the blood destruction that occurred in the disease might be explained by a speeding-up of the physiological processes of blood destruction and the embryonic or senile character of the blood might predispose to this increased destruction.

Dr. Houston then briefly discussed the treatment of the disease by (1) arsenic, (2) hydrochloric acid, (3) blood transfusion, and (4) splenectomy.

Irish Free State: The Local Government Bill.

A debate and division of some interest took place recently in the Dail during the discussion of the Local Government Bill. Section 17 of the Bill proposes to give the Minister power to establish consultative councils for giving him advice in connexion with such matters affecting health as might be specified in an Order. At the same time the Bill proposes to abolish the Irish Public Health Council, which has the power, of its own initiative, to offer advice to the Minister on all matters concerning health. Mr. Johnson, leader of the Labour party, moved the deletion of Section 17 and proposed the substitution of a new section to establish a Public Health Council to advise the Minister. The council would consist of eight persons, representing boards of health, appointed by the Minister after consultation with such councils; four persons representing councils or county boroughs; three doctors, two having diplomas in sanitary science; one dentist, one veterinary surgeon, two nurses, and two midwives. The new section further provided that the Public Health Council should meet at least twice a year, and that payments might be made by the Minister out of moneys provided by the Oireachtas to members of the Public Health Council, and to committees thereof, to such extent as might be sanctioned by the Minister for Finance in respect of travelling expenses, subsistence allowance, and compensation for loss of time.

Mr. Johnson's views were supported by Sir James Craig, the medical member for Dublin University, and by several members of the Labour Party and of the Farmers' Party. It was opposed by a "Business Member" on the ground of expense. The Minister opposed the amendment, and after an irrelevant attack on the medical profession, for which he subsequently apologised, gave as his reason that the existence of a council such as was suggested by Mr. Johnson would lead to friction with his department, and that he preferred to be advised by the Dail rather than by such a council. In the subsequent division the amendment was defeated by 30 votes to 27, the Minister having no support outside his own party except that of the two "Business Members." The narrowness of the Government majority is a great encouragement to those who believe that a council with originative power would initiate a strong health policy.

Dublin Milk.

Under the auspices of the Royal Dublin Society, Dr. J. W. Bigger, professor of bacteriology in Dublin University, recently delivered a lecture on milk. He was chiefly concerned with the condition of the Dublin milk-supply in its relation to health. He stated that Dublin milk, on an average, contained 600,000 bacteria per cubic centimetre in winter and 4,000,000 in summer. Tubercle bacilli of the bovine type were found to be present in 8 per cent. of the milk bought and sold in Dublin. Tuberculosis was very prevalent in cows in Dublin, 1 out of every 12 was capable of communicating the disease. He alluded to experiments carried out under the old and newly devised methods of taking milk from the cows. Consequent on the precautions taken under the new methods they had produced milk that remained sweet for seven and a half days on an average, or three times as long as the milk obtained under the old conditions. Forty-eight per cent. of the milk sold in Dublin might, he said, be condemned as unfit for human food, and it was essential for the health of the community that the public should demand clean milk. He considered the present price of milk excessive. Dealers were able to supply hospitals and other institutions at contract prices enormously below the figure charged the public. Whether it was good or bad milk, clean or dirty, the same price was charged in Dublin. The law took cognisance of those extracting fats from milk, but not of those selling milk impregnated with bacteria, which was actually poisoning the child life of the city, and he pleaded that some public interest in this question of milk should be aroused. If that could be done, he concluded, it would be possible to obtain a satisfactory milk-supply in Dublin.

Tercentenary of the Founder of the Royal College of Physicians of Ireland.

On Nov. 26th the Royal College of Physicians of Ireland celebrated the 300th anniversary of the birth of its founder, John Stearne, in the presence of the Governor-General of Ireland, of the President and Fellows of the College, of the President and Council of the Royal College of Surgeons, who attended with their mace, and of a distinguished company of visitors. The Registrar of the College, Dr. T. P. C. Kirkpatrick, delivered an oration in honour of Stearne. John Stearne, of English descent, was born in Co. Meath in 1624, and entered Trinity College, Dublin, in 1639. His course of study was disturbed two years later by the outbreak of the Great Rebellion, and he betook himself to Cambridge, where he entered at Sidney Sussex College. After some ten years in England, spent mostly at Cambridge, though he also worked at Oxford, Stearne returned to Dublin as a Fellow of Trinity College. He had studied medicine at Cambridge, and on his return to Dublin he began practice as a physician; while in the College he held, in addition to his Fellowship, the chairs of medicine and of Hebrew. A few years later he was entrusted by the Board of the College with the duty of establishing and presiding over a confraternity of physicians, to be housed in Trinity Hall, a building outside the College, but only a few yards from the gate. Twelve years later this society received from Charles II. a charter as a College of Physicians, Stearne being named as first president. He died three years later at the age of 45. Stearne does not appear to have written any works on medicine, his few publications being concerned rather with philosophy and theology. A vote of thanks to Dr. Kirkpatrick was proposed by the Provost of Trinity College, and seconded by Dr. J. O'Carroll, a past-President of the College of Physicians.

BERLIN.

(From our own Correspondent.)

The Hadwen Case from the German Standpoint.

Considered from the standpoint of German legislation and German views the recent Hadwen case[1] presents many points of interest. In Germany a course of treatment such as that adopted by Dr. Hadwen in a case of diphtheria would, it seems, be regarded as malpractice—Kunstfehler. In a recent number of the *Aerztliche Sachverständige-Zeitung*, the journal of medical experts, malpractice is described as a bodily injury, or a prejudice to the health of a patient produced by the neglect of generally adopted principles of medical science. If a medical man, for example, has deliberately withheld antitoxin treatment this would be, according to the law, a "vorsätzliche Körperverletzung"—deliberate injury to health—a crime punishable with imprisonment up to three years; if the patient lost a limb, or an eye, or became totally unable to work, the medical man would be liable to imprisonment up to five years; if the patient died the minimum penalty would be five to ten years' penal servitude. The consent of the patient does not protect the medical man from prosecution, although he would not be liable to pay damages to the patient. The use of methods which have not received the sanction of the profession as a whole would be criminal where such methods caused injury or death to a patient, but is, of course, not punishable where the outcome has been of benefit to the patient. It is worthy of note that this law does not apply to the medical profession alone; the above rules are part of the general legislation on injuries, whoever may have caused them. In the forthcoming reform of criminal law it is intended to make special provisions in this matter with regard to the medical profession. Prosecution of medical men is indeed very rare, whilst actions for damages on behalf of patients occur rather frequently.

Deterioration of the Air in Berlin.

Berlin enjoyed, before the war, a relatively good and pure air, compared with that of other great cities, but now this has changed altogether, as has been ascertained by careful experiments made in the Hygienic Institute of the University on behalf of the city authorities. The chief cause of the impurity of the air is, as explained by the director of the Hygienic Institute, that the cleaning of the streets has been reduced for reasons of economy, so that more dust develops, notwithstanding the fact that fewer horses are now on the streets; also, the great increase of motor traffic has led to the presence of a greater quantity of petrol fumes in the air; this is the more noxious as motor-car proprietors are inclined to use, for economic reasons, petrol of an inferior quality, and out-of-date carburetters which develop more vapour than the modern ones. A by-law prohibiting the use of obsolete carburetters and of petrol of inferior quality is being considered.

Proposed Reform of the Lunacy Laws.

Proposals made some time ago to unify the legislation with regard to lunacy, which varies in the different German States, have not met with the approval of experts. A new Bill has therefore been drafted for Prussia alone, where the present lunacy laws are somewhat obsolete. The principles of the proposed Bill were recently described by an official of the Ministry for Public Welfare which deals with lunacy laws. It is proposed that to obtain the admission of an insane person to an asylum an application to the police should be required. The application must be made by the family of the patient; in place of the family the Poor-law authority, and in cases of soldiers the military authority, may apply for the admission of the patient. The application must be based on a medical certificate setting forth the nature and the history of the disease and containing a reference to the patient's heredity. The police would be obliged to give their consent when the district medical officer has certified that the admission is necessary for the protection of the patient himself, of his property, and of other persons to whom he may become dangerous. In urgent cases it is proposed that every medical man may certify the immediate necessity of the admission of a patient, and the consent of the family may even be dispensed with. If a patient has been admitted to a private asylum, he must appear personally, within 48 hours, before the district medical officer. Law courts will also be entitled to order that a person should be admitted to an asylum for a period not exceeding six weeks for observation, to ascertain whether or not the person is responsible for his acts. A person may be admitted to an ayslum at his own request, but in that case he must appear at once before the district medical officer and may be kept in the asylum only with the consent and on a certificate of that officer. A central board for the control of the asylums under the Ministry of Public Welfare, and local boards for each province, consisting of a Government officer of health, an alienist, and a layman with experience in social matters, are to be established. Every asylum must be inspected at least once a year without previous notice; the members of the inspecting board must have the opportunity to speak to every patient and they are also entitled to look into the case-books. It is pointed out by the Ministry of Public Welfare that the preliminary of police sanction for admission to an asylum should put an end to wrongful detention. A well-known alienist has protested in the press against the Bill on the ground that the necessity of approaching the police would induce some families to abstain as long as possible from having an insane relative admitted to an asylum. To carry out the work outlined in the proposed Bill the number of police officers would have to be increased, an anomalous proceeding at a time when the number of asylum medical officers has been reduced for reasons of economy.

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[1] See The Lancet Special Supplement, Nov. 8th, 1924.

Broadcasting of Lectures on Hygiene.

Broadcasting has been used in Berlin for lectures on hygienic subjects. The lectures concerned first-aid in accidents and in hydrophobia (a disease which has become rather frequent), the hygiene of dwellings and of travelling, and tuberculosis. It was proposed also to deal with the prophylaxis of venereal diseases, but that proved inadvisable because the lectures would also be heard by children.

The Services.

ROYAL ARMY MEDICAL COLLEGE.

Maj. J. A. Manifold, R.A.M.C., relinquishes his appt. as assistant professor.

ROYAL ARMY MEDICAL CORPS.

Capts. R. B. Price and H. F. Panton (Bt. Maj.) to be Majs.

Capt. J. Biggam is restd. to the estabt.

TERRITORIAL ARMY.

Supernumerary for service with the O.T.C.—Lt. F. R. Sandford, from the Gen. List, T.A., to be Lt. for service with the Medical Unit of the London University O.T.C.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. E. T. H. Lea, from Active List, to be Maj.

ROYAL AIR FORCE.

Flying Officer C. V. D. Rose is promoted to the rank of Flight Lt.

DEATHS IN THE SERVICES.

Maj. Robert Carlyle Carlyle, who, with two Syrian medical officers, was among the killed in the Sudan mutiny on Nov. 27th, graduated in medicine and surgery at the University of Edinburgh in 1911. The following year he entered the Royal Army Medical Corps as a lieutenant and was appointed captain in 1915. Two years later he was attached to the Egyptian Army.

Royal Commission on National Health Insurance.—The eighth meeting of the Commission was held at the Home Office, Whitehall, on Nov. 27th, Sir Andrew Duncan in the chair. The examination of the representatives of the Hearts of Oak Benefit Society, Mr. Hezekiah Dudley, chairman of the Executive Council, and Mr. J. P. Lewis, C.A., secretary, was continued. Various questions relating to the deposit contributors, the insurance of married women, the scheme of penalties for arrears, the additional benefits, the application of surpluses were dealt with. The Commission announce that the oral evidence given at the meeting of Nov. 13th, 1924, is now on sale in proof form (1*s.* 6*d.*) at H.M. Stationery Office, Adastral House, Kingsway, London, W.C. It should be understood that this and the similar proofs issued at weekly intervals are subject to correction, and that the evidence as finally published on behalf of the Commission will be the only authoritative record of their proceedings.

INFECTIOUS DISEASES ABROAD.

The following general summary is compiled from the monthly Epidemiological Reports published by the Health Section of the League of Nations, supplemented, when possible, by more recent information from other sources.

Plague.—In India this year the curve of plague mortality dropped to its lowest point in the last week of July, which is a few weeks later than usual. The curve has since risen steadily to an average of about 500 deaths per week for the country as a whole. In the week ending Nov. 15th no death from the disease was notified in the ports of Bombay, Calcutta, Karachi, and Madras, but there were three in Rangoon. As regards other parts of the world, the following is a list of countries or localities in which the disease has recently occurred:—Europe: Crete (August), Greece, Naples, Paris. Asia: Beyrout, Ceylon, Dutch East Indies, Baghdad, Jaffa, Bangkok, Singapore. Africa: Algeria (August), Canary Islands, Gold Coast, Madagascar, Mauritius, Nigeria (Lagos), Uganda, Union of South Africa. America: Ecuador, Los Angeles (outbreak of pneumonic type with 31 deaths reported up to Nov. 13th).

Cholera.—In India during August the reported cholera cases averaged about 8050 per week and deaths 4850. For the week ending Sept. 27th the figures were 4251 cases and 2422 deaths. Very few cases have recently been reported from other parts of the world.

Yellow Fever.—Sporadic cases continue to be notified from the Gold Coast and from ports of Mexico and other countries in Central America. It is estimated that at San Salvador there were 60 cases between June and September.

Typhus.—The typhus situation in Russia and Eastern Europe at present is believed to be more favourable than in any year since the war, but as regards most of the countries June is the last month for which full statistics are available. In Poland only 246 cases were notified during August; Esthonia, Latvia, Lithuania, Czecho-Slovakia, Jugo-Slavia, Roumania, and Bulgaria were almost or quite free from the disease. The most recent notifications from other countries are: Algeria, week ended Oct. 31st, 4 cases; Chile, week ended Oct. 13th, 20 cases (at Talcahuano); Egypt, week ended Nov. 11th, 14 cases, of which 2 at Cairo; Italy, week ended Sept. 28th, 1 case at Sesto al Reghena; Malay States, week ended Nov. 21st, 1 case; Portugal, week ended Oct. 18th, 1 case at Oporto; Syria, week ended Sept. 30th, 1 case at Aleppo; Turkey, week ended Nov. 8th, 1 case at Constantinople.

Small-pox.—In general the small-pox situation abroad at present is decidedly favourable. Northern Europe (including Scotland and Ireland), the Baltic Republics, and Central Europe as far south as Roumania are almost or quite free from the disease, and it is declining in many other areas where it was prevalent. The following figures indicate the recent incidence in some important countries: France, week ended Oct. 10th, 1 case at Paris; Italy, week ended Oct. 19th, 4 cases; Spain, week ended Nov. 2nd, 5 cases at Madrid; Portugal, week ended Nov. 15th, 1 death at Oporto; Switzerland, week ended Oct. 25th, 2 cases in the Berne Canton, 1 in the Lucerne Canton; Greece, month of September, 4 cases; Algeria, week ended Nov. 10th, 26 cases; Canada, 3 cases at Vancouver, week ended Oct. 11th; United States, 47 cases in California State, week ended Sept. 27th; 7 cases in Oregon and Washington States week ended Oct. 11th.

Enteric Fever.—In many countries enteric fever appears to have been more prevalent this summer than last. The increased summer incidence was particularly marked in the Baltic region (Sweden, Finland, Esthonia, and Latvia). In Denmark, however, only 55 cases were notified during August, as compared with 191 during the same month last year.

In Germany, 1967 cases were notified in the four weeks ending Sept. 6th, as compared with 1680 during the preceding four weeks, and in Italy 1159 cases during the week ending August 23rd, as compared with 373 cases during the previous week.

Scarlet Fever and Diphtheria.—In Germany and the Netherlands the incidence of these diseases during September was somewhat higher than last year. The following are a few recent statistics of deaths in certain cities: Paris, Nov. 1st to 10th, 3 deaths from diphtheria; Amsterdam, week ended Oct. 11th, 1 death from scarlet fever; Berlin, week ended Sept. 27th, 2 deaths from scarlet fever, 3 from diphtheria; Breslau, Cologne, and Frankfort-on-Main, week ended Sept. 27th, 1 death from scarlet fever in each; Leipzig, week ended Oct. 25th, 3 deaths from diphtheria; Munich, week ended Sept. 27th, 2 deaths from diphtheria; Budapest, week ended Sept. 20th, 1 death from scarlet fever, 1 from diphtheria; Warsaw, week ended Nov. 8th, 10 deaths from scarlet fever, 2 from diphtheria.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal statistics of four of our largest inland cities for 1923:—

Name of city.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Birmingham.	946,400	20·1	10·8	1·06	1·15	2·2	31	72	3·5
Sheffield ..	524,200	19·4	11·5	1·03	1·19	2·5	39	90	4·0
Leeds	469,900	18·5	12·7	1·35	1·22	2·5	42	89	5·2
Bradford ..	290,800	18·2	13·7	1·02	1·29	3·0	36	78	4·9

Birmingham.

Dr. John Robertson says that during 1923 the general health of the people of Birmingham reached a higher standard than ever before. For further improvements he pins his faith to a more intensive educational campaign, to which the school, the health nurse, the press, special lectures, and pamphlets must contribute their quota. He thinks the late war has left many people with a somewhat unbalanced mentality. The whims of neurasthenics are too sympathetically dealt with and the question of sex looms too largely in the lives of many city dwellers. While he is convinced that much lies with the individual there is still much to be done by the local authority. He instances the need for better arranged houses in pleasant environment and the total abolition of all the courtyard houses in Birmingham; also the need for greater facilities for outdoor recreation; and, thirdly, the need for permanent allotments. Birmingham, like some other places, had a small outbreak of enteric fever caused by the paratyphoid B bacillus, for which no cause could be assigned. Arrangements have now been made with all the nursing societies in Birmingham to supply a visiting nurse for cases of measles, whooping-cough, and pneumonia on the request of the public health department. For this purpose a grant of 10s. per case is made to the nursing society. Unemployment and the housing conditions militate against the prevention of tuberculosis, but, on the other hand, the relief given to distressed persons has been very effective.

The report of the chief tuberculosis officer, Dr. G. B. Dixon, shows that 60 per cent. of all the notified cases of pulmonary tuberculosis were examined during the year. Dental treatment is provided for the patients and artificial dentures on advantageous terms. Dr. Dixon gives a table showing the present condition of patients treated in previous years. Of the patients whose sputum contained tubercle bacilli, 22·3 per cent. of those treated in 1913 are at work regularly, while 26·4 per cent. of those treated in 1919 are working regularly. It is found that in only a limited percentage of cases is it possible to arrive at a correct diagnosis after one or two examinations in the consulting room. For this reason the observation beds at Yardley-road Sanatorium have been found most useful. During 1923 311 cases, about one-fifth of all the sanatorium patients, were admitted to these observation beds for a period varying from two to four weeks. In 41 per cent. a positive diagnosis was the result and in 59 per cent. a negative. Dr. Robertson gives a table showing the percentage of samples of mixed milk found to be tuberculous during the last 17 years. The percentage for the whole period is 8·7, while the percentage for 1923 was 8·2. There is thus no indication that the operation of the milk clauses contributes to the lessening of bovine tuberculosis or tuberculosis of the udder. Cows with tuberculous udders are not necessarily the most infectious cases, so it is not to be expected that the milk clauses would do anything more than remove dangerous milk at an earlier period than if no action were taken. Mr. Brennan De Vine, the veterinary inspector, reports in a useful manner on the Birmingham effort to secure tubercle-free herds. There are now 18 herds in the scheme, 13 of which are breeding herds. All the herds are tested half-yearly. The results show that there are generally some reactors at the half-yearly testing, even in the breeding herds, though six of the breeding herds had no reactors. Cows purchased subject to passing the test are returned to the vendors if they fail to pass. Cows which give a doubtful reaction are isolated and re-tested a month or six weeks later. The number of cows tested for the first time during 1923 under the scheme was 311, and of these 67, or 21·5 per cent., failed to pass. Mr. De Vine's report indicates many of the difficulties to be encountered in securing and maintaining tubercle-free herds. Except in the case of breeding herds the outlook does not appear to be hopeful. Dr. Robertson is enthusiastically in favour of adequate pasteurisation. He thinks that even the inadequate methods of pasteurisation and sterilisation, which have been the rule in Birmingham for some time past, have had their effect in producing a low death-rate from non-pulmonary tuberculosis. A number of firms are now engaged in installing up-to-date pasteurisation plant to comply with the new regulations.

The Carnegie Infant Welfare Institute was opened in October, 1923, and a large number of illustrations of the building are included in the report. In addition to the usual consulting and waiting rooms, there is an observation ward with accommodation for eight non-thriving babies; a sun-balcony, a toddlers' room where the young children can be left while the mother and baby are awaiting their turn, and a demonstration room for lectures on cooking and sewing. There were 126 cases of pemphigus neonatorum with ten deaths, and Dr. Robertson thinks the importance of this disease as a cause of death has not yet been fully realised. The damage done by ophthalmia neonatorum during 1923 was the worst of any year since this disease came under the purview of the public health committee. There were ten cases of serious damage to eyesight, and six of these will probably be blind children. There was a large outbreak of acute anterior poliomyelitis during the autumn. Of 33 cases notified three died, and 25 of the survivors will be left as more or less complete cripples. There were 29 cases of encephalitis lethargica notified with 12 deaths. Of the 17 survivors only four had made a complete recovery by the end of six months after the attack.

The want of housing accommodation is causing dire distress.

Sheffield.

Dr. Fred. E. Wynne reports that there was an unusual number of cases of enteric fever in Sheffield during the autumn. The cases were distributed throughout the city, and no cause could be assigned for the outbreak. The disease was of a severe type. A table is given in the report showing that of the 17 towns in England and Wales with a population of over 200,000 Sheffield had the lowest death-rate from tuberculosis in spite of the well-known effect of the grinding industry. But the mortality in this industry will not be satisfactory, says Dr. Wynne, until the system of giving out work to the lessees of little, dark, insanitary "wheels" is abandoned in favour of large, economically organised and adequately equipped factories. The large amount of unemployment in the grinding trade has probably been a factor in reducing the incidence of tuberculosis.

The report of Dr. John Rennie, the tuberculosis officer, shows that the dispensary is being well used by the medical profession in Sheffield as a consultation centre. There were no less than 2157 "suspects" examined and the observation beds in the hospitals were largely used. Thirty-eight places are reserved at the two open-air schools for children selected by the tuberculosis medical officer. The fact that 23·7 per cent. of the cases were notified before tubercle bacilli had appeared in the sputum is evidence that pulmonary tuberculosis is being notified at an earlier stage. Infant mortality showed an increase in 1923, the rate being 90 as compared with 82 in the previous year. There were 646 new houses certified in the 12 months ending March 31st, 1924, 278 of which were erected by the corporation. The list of applicants for municipal houses has become hopelessly unwieldy, and many applications of a most pathetic description are received.

The report of Mr. J. S. Lloyd, the veterinary inspector, shows that of 957 samples of mixed milk 7·1 contained tubercle bacilli. The system adopted by the veterinary staff of making immediate microscopical examination of suspected milk has been continued with satisfactory results. By this means cows with tuberculous udders have been eliminated from the milk-supply of the city at an earlier period, and the delay caused by waiting for the result of the "guinea-pig" test has been avoided.

Leeds.

Dr. J. Johnstone Jervis says that more than 60 per cent. of the occupied houses in Leeds are of the back-to-back type. He divides them into three classes—the modern, very good; the old, very bad; and a third class, midway between the other two. It was impossible to analyse the 1923 deaths so as to indicate how many occurred in each of the three classes, but 66·4 per cent. of the total deaths occurred in back-to-back houses, which only slightly exceeds their due proportion. Cremation makes very slow progress in Leeds. During 1920–23 the average annual cremations were about 12, as compared with 11 in 1905–08. Dr. Jervis draws attention to the inadequate number of beds provided at the Leeds General Infirmary. He thinks 1200 beds should be provided instead of 700 as at present. He points out, however, that there is ample accommodation in the Poor-law infirmaries to meet the deficit if it could be brought into use. Perhaps the two most dangerous street nuisances of our time, says Dr. Jervis, are the spitting man and the ill-trained dog. Regulations with regard to underground sleeping rooms made under the Housing, &c., Act of 1909 came into force in September, 1923, and it will now be possible to exercise stricter supervision over owners of flats who allow rooms in basements to be used as sleeping rooms. Progress has been made with regard to the smoke from factory chimneys. One noticeable improvement tending towards smokeless combustion has been effected in the case of a large number of Lancashire boilers by the simple process of shortening the length of the furnace and working on a reduced grate area. The Milk Designations Order has failed to elicit the response anticipated. One licence was issued during the year for certified milk and one for pasteurised milk. In addition the two corporation farms were granted licences by the Ministry of Health for the production of Grade A (tuberculin-tested) milk. The licences were, however, revoked at the end of the year, and these two farms now produce Grade A milk. Only 62 samples of "outside" milk were examined for tubercle bacilli, but five of these, or 8·1 per cent., were found to be infected. Dr. Jervis draws attention to the unsatisfactory state of the law for ensuring the satisfactory disposal of the tuberculous cows found by following up, and would like to see the Tuberculosis Order of 1914 brought into operation. He further states that the cows and cowsheds in the rural districts visited are in a deplorable condition. The accommodation at the Leeds public abattoir is quite insufficient, and its extension and improvement are urgently needed. In last year's report Dr. Jervis expressed his dissatisfaction with the results which were being obtained by the Leeds Antituberculosis Organisation. Towards the end of 1923 he made a special report on the subject which indicated that the tuberculosis mortality-rate had not improved as much in Leeds as in other large towns. In fact, his figures show that the death-rate from pulmonary tuberculosis during 1903–12 was 1·30, as compared with 1·34 for the decennium 1913 to 1922. Dr. Jervis makes several important recommendations, and the reorganisation of the scheme is now in progress.

Bradford.

Dr. John J. Buchan reports that rapid progress is being made with the conversion of privies; 1945 were dealt with in 1923, and there now only remain 5547 to be dealt with. Fish-frying is regulated as an offensive trade. There were 49 applications during the year for permission to establish new fish-frying businesses, all of which were refused. 1046 observations were made of furnace chimneys, and 182 chimneys were found to be either offending or working on the border-line of offence. Proceedings were taken 21 times—namely, against eight owners, six engineers, and seven stokers. The penalties and costs only totalled to £24 18*s*. Dr. Buchan states that many stokers of long experience still retain the practice of covering all the fires at one charge of fuel.

It is estimated that the daily consumption of milk in Bradford is 14,600 gallons, of which 8000 are produced within the city and 6600 outside. There are about 4324 cows stalled inside the city. No mention is made of veterinary inspection, but judging from the experience of Sheffield it ought to be possible to find about 30 tuberculous udders annually among this number of cows. Dr. Buchan says cooling of the milk is not practised to a sufficient extent. Only 105 samples of mixed milk were examined for tubercle bacilli, of which four were found to be infected. The municipal milk depôt obtains its milk from six sources outside the city and about one-eighth of its supply is Grade A (tuberculin tested) milk. Of the 5290 births, midwives attended 3607, only 64 being attended by untrained midwives. Nearly half of the midwives' cases (actually 1531) were attended by the municipal midwives. The supervision of the midwives is undertaken by a woman medical officer, who also does antenatal work and directs the visiting of the expectant mothers done by the municipal midwives. The antenatal visiting of expectant mothers who have engaged non-municipal midwives is undertaken by the health visitors. There is much serious overcrowding. At the end of the year applicants for new houses numbered 5135.

Dr. Buchan's report as school medical officer contains a diagram which indicates the very complete arrangements made by the Bradford Education Authority for dealing with every kind of child. The

X ray treatment of ringworm has been successful. Among the 1792 children treated there has not been a case of recurrent ringworm nor one where there was not full re-growth of hair. In regard to sight deficiency the Bradford authority adopt the practice of supplying the spectacles needed and recovering the cost from the parents. During 1923 1370 pairs of spectacles were supplied and it was only found necessary to remit the cost, owing to the circumstances of the family, in 93 cases. The school dentist, Mr. B. North, reports that 29,197 children were inspected by the four whole-time dentists, 2863 of them being secondary school-children. About 75 per cent. needed treatment. The beautifully situated open-air school at Thackley has accommodation for 190, but this is already found to be insufficient. Some relief will be obtained by the increase of the accommodation at the physically defective school from 190 to 256. The myope school was transferred to a specially constructed and designed open-air school at Daisy Hill, on a site with a southern aspect about 700 feet above sea-level, on July 16th. The benefit to the children has been great.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 22ND, 1924.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 74; scarlet fever, 2099; diphtheria, 1135; enteric fever, 55; pneumonia, 1083; puerperal fever, 40; cerebro-spinal fever, 6; acute poliomyelitis, 19; acute polio-encephalitis, 2; encephalitis lethargica, 43; continued fever, 1; dysentery, 12; ophthalmia neonatorum, 128. There were no cases of cholera, plague, or typhus fever notified during the week. Of the cases of small-pox 15 were notified from Derbyshire (Derby 11, Bolsover 1, Chesterfield R.D. 3), 16 from Lancaster (Ashton-under-Lyne), 4 from Lindsey (Glanford Brigg R.D.), 14 from Yorks, North Riding (Middlesbrough 11, Redcar 1, Scarborough 2).

Deaths.—In the aggregate of great towns, including London, there were 5 deaths from enteric fever, none from small-pox, 13 from scarlet fever, 31 from diphtheria, 50 from measles, 53 from influenza. In London itself the deaths from diphtheria numbered 12 and from infantile diarrhœa 20.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the committee of the Fund 37 cases were considered and £555 voted to 33 applicants. The following is a summary of some of the cases relieved:—

Widow, age 70, of F.R.C.P. Edin. who practised in the Isle of Wight and died last month. Applicant's late husband was in receipt of £2 3*s.* 4*d.* a month from the Fund from June of this year as he had to give up his appointment owing to ill-health. The Royal College of Physicians granted applicant £25 towards funeral expenses and friends gave £10. Applicant is left without means and the Fund voted her a special grant of £10 and £26 in 12 instalments.

Widow, age 58, of M.D. who was a medical officer for 21 years in West Africa and died in April of this year. Applicant has let her flat furnished and is staying with her married daughter whose circumstances do not permit her to help her mother to any great extent. They hope to be able to get a house later so as to take in boarders. The son is at present unable to help his mother. Voted £10.

Widow, age 63, of L.R.C.P. Edin. who practised in Essex and died in 1915. Applicant has been able to help herself up to the present by taking various posts, but had an accident which injured her ankle and she is now lame. Her only income is the eighth share of some property amounting to £40 per annum, but this is not always regularly paid. Her rent is 30*s.* a week. Voted £26 in 12 instalments.

Widow, age 51, of M.D. Durh. who practised in Nottinghamshire and died in 1899. Applicant has paralysis in legs and feet and has tried to help to support herself by teaching music but the average amount received this year was 7*s.* 6*d.* per week. The case was referred to the Fund by the St. Andrew's Society who are allowing her £39 and gave a grant of £5 to help her to canvass for a National Benevolent Institution annuity. The N.B.I. also gave her £12. Voted £18 in 12 instalments.

Widow, age 63, of L.R.C.P. Edin. who practised at Brighton and died in July this year. The long illness of her husband, who was disabled by an accident, resulted in their savings being exhausted. Applicant has managed to let her room for the last three months and received £8 18*s.* 3*d.* The Lodge granted her £10 10*s.* Inclusive rent is £43 per annum. Voted £18 in 12 instalments.

Daughter, age 50, of M.R.C.S. Eng. who practised in Notts and died in 1895. Applicant suffers from tabes dorsalis and finds it hard to support herself. When able she makes sweets and cakes. Her only income apart from this is an annuity of £40 from the Army Officers' Benevolent Fund. Rent amounts to £33 per annum. Voted £18 in 12 instalments.

Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-st., Cavendish-sq., W. 1.

THE GENERAL MEDICAL COUNCIL.

PENAL CASES.

THE winter session of the General Medical Council opened on Nov. 25th; Sir DONALD MACALISTER presided. His address appeared in THE LANCET of Nov. 29th. Thirteen penal cases came before the Council during the session. The cases were heard in public; the Council deliberated upon them in camera, and the decisions were publicly announced as usual. Two medical cases had been adjourned from previous sessions of the Council. Three names were erased from the Medical Register.

TUESDAY, NOV. 25TH.

The Case of Charles Gilroy King.—The Council proceeded to the consideration of the case of C. G. King, registered as of Pollokshaws-road, Glasgow, L.R.C.S. Edin., M.B., C.M. Glasg., adjourned from Nov. 28th, 1923.

C. G. King was convicted at the sheriff court of Lanarkshire, at Glasgow, on June 21st, 1922, of procuring drugs from a chemist and failing to supply prescriptions and to enter particulars of the said drugs or any portion thereof in a day-book or register kept for the purpose, contrary to the Dangerous Drugs Act, 1920, and regulations made thereunder, and fined £50 or 30 days' imprisonment, and convicted at the same court on June 25th, 1923, on a similar charge, receiving a similar sentence. These prosecutions had been undertaken by the Home Office, whose medical inspector had brought the facts to light. Part of the drugs procured had been dispensed to patients in an ordinary manner, but most of the supply went to Dr. King's wife, who was an addict; it appeared that Dr. King was completely under his wife's influence, and in spite of promises made after the first visit of the Home Office medical inspector, no better care was taken in respect of the registering of drugs. The Home Office authorisation under the Dangerous Drugs Act had been withdrawn from Dr. King, but no question arose as to his having attempted to traffick in these drugs. The Council considered that Dr. King had not fully apprehended his responsibilities under the Dangerous Drugs Act; judgment was postponed for 12 months, with the usual proviso as to unexceptionable behaviour in the interval.

Two favourable reports as to the conduct of Mr. King from medical men practising in his neighbourhood were put in, and a third report from Sir Robert Wilson, of Glasgow. The Council then deliberated on the case in camera and the President announced their decision, that the Council had accepted the evidence in favour of Mr. King and had decided not to direct the Registrar to erase his name from the Medical Register.

The Case of Haydn Brown.—The Council considered the case of Haydn Brown, registered as of Cavendish-square, W., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., who had been summoned to appear before the Council on the following charge:—

> "That, being a registered medical practitioner, you have sought to obtain patients or to promote your own professional advantage by means of an article under your name and professional qualifications, and containing also your portrait, published in *John Bull* of July 19th, 1924, entitled 'Childbirth: Amazing New Discovery!' And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

All the members of the Council were supplied with a copy of the issue of the publication referred to in the charge. Dr. Haydn Brown attended in answer to his notice and explained that he had really no answer to make to the charge, but that he was ready to reply to any questions put to him. In the course of cross-examination he stated that he was rung up on the telephone by *John Bull* as the result of a book which he had published and was asked to write an article on some subject of interest. He accepted the invitation and suggested maternal mortality from child-birth as a suitable subject. He sent typewritten notes of the article to the publication mentioned and shortly afterwards received a typewritten proof which he was asked to approve. He was in a great hurry at the time and read it through quickly and gave his approval. The article as it appeared was somewhat different from the notes which he sent in. In some respects the article, as printed, was, he thought, stronger in its language, and he did not think he had approved the headings. Dr. Brown, however, produced a copy of his original notes and handed them in to the President for comparison with the article as it appeared. The President expressed the opinion that there was not much essential difference between the printed article and the notes, and that in some cases the language used in the notes was stronger than that in the printed article. In further cross-examination Dr. Brown explained his strong belief in his "discovery" and his inability to get the matter taken up in the medical press. He therefore welcomed the opportunity of appealing to the public through the columns of *John Bull* with the idea that the public would then appeal to their doctors to give them the benefit of the new treatment. He himself had given up obstetrical practice 15 years ago, but before doing so had satisfied himself as to the value of "autonomous relaxation." He thought he had tried it in two or three cases. He had used "autonomous relaxation" extensively during the last 15 years, but not in "labour" cases. Dr. Thomson Brown, referred to in the article, had been a pupil of his with regard to "autonomous relaxation." In reply to the President, Dr. Haydn Brown explained that the system was the result of some kind of communication or suggestion from doctor to patient, and that it was a matter of opinion as to whether automatic or autonomous was the better term. When he wrote the article he realised that his appearance before the General Medical Council might be the result. At the same time he realised that such a result would give even greater publicity to the new treatment which he was so anxious to introduce.

The Council then deliberated on the case in camera, after which the President announced its decision as follows:—

"Mr. Brown: I have to inform you that the facts alleged against you in the notice of inquiry having been proved to the satisfaction of the Council, the Council have judged you to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase your name from the Medical Register."

The Case of Jonathan Allan Thornhill.—The Council proceeded to the consideration of the case of J. A. Thornhill, adjourned from the May session.

This practitioner, registered as of Ingleside, Newnham, Glos., L., L.M. R.C.P. Irel., L., L.M. R.C.S. Irel., had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner: (1) On April 15th and 18th, 1923, while attending a Mr. J. P., who was seriously ill from influenza, you were so far under the influence of drink that your power of judgment and sense of responsibility were affected to a degree rendering you unfit to be in charge of a serious case of illness. (2) On April 23rd, 1923, you gave to the said J. P. a National Health Insurance certificate stating that you had examined him on that date and that he was incapable of work by reason of broncho-pneumonia, whereas you had not seen or examined the said J. P. on that date or since April 18th, 1923; which certificate was untrue, misleading, or improper; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect." The Council found that the first part of the charge had not been proved to their satisfaction, and as regards the second part they suspended judgment till November of this year.

Two testimonials as to Dr. Thornhill's satisfactory conduct during the period of probation from brother practitioners, and one from a minister of religion were submitted. In reply to the President, Dr. Thornhill gave his assurance that he would in future exercise due care in the issue of certificates. The Council deliberated in camera and the President announced its decision that the Council did not see fit to direct the Registrar to erase the name of Jonathan Allan Thornhill from the Medical Register.

The Case of Kul Want.—The Council proceeded to the consideration of the case of Kul Want, of Rock House, Retford, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., who had been summoned to appear before the Council on the following charge:—

> "That being a registered medical practitioner, you on June 30th, 1924, signed and issued the following certificate, viz.:—
>
> 30.6.1924.
>
> I Hereby Certify that *F. B.*
> residing at *14 George Street*
> is suffering from *Bronchitis*
> and is unable to follow his employment *school for 14 days.*
> *K. WANT,*
> Surgeon.
>
> —whereas you had not seen or examined the said F. B., who was, in fact, quite able to attend school, which certificate was untrue, misleading, or improper. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council's solicitor put in the statutory declaration of Mr. Hill, schools attendance officer of Retford, and called Mr. Hill as a witness to prove the facts stated in the charge. Mr. Want went into the witness-box and explained that he had a long attack of bronchial asthma during the summer of 1924 and was confined to bed for a considerable period. On June 30th he was ill in bed and came down feeling very bad to see some patients, having at the time no locum tenens. Among those waiting was Mrs. B., who said her son F. had a similar attack of bronchitis to that for which Mr. Want had previously attended him. She asked to be supplied with the same medicine as the boy had had before. She then asked for a certificate that he was unfit to attend school. Mr. Want was expecting a new locum tenens on this day and gave the certificate, thinking that the new locum tenens would be able to visit the Broughtons when he arrived. As it turned out the new locum tenens did not arrive until July 2nd. Mr. Want further stated that the giving of a certificate under these circumstances was an isolated occurrence, and he gave an assurance that he would exercise greater care with respect to the signing of certificates in future. Mr. le Brasseur submitted testimonials as to the esteem in which Mr. Want was held in Retford and as to his good public work.

The Council deliberated on the case in camera, and the President announced its decision that the Council found the facts in the charge proved and that Mr. Want's explanation was no excuse for the laxity shown in the issue of the certificate. The Council were, however, prepared to accept Mr. Want's statement that this was an isolated occurrence and his assurance that he would exercise great care in the issue of certificates in the future.

Wednesday, Nov. 26th.

The Case of John Evans.—The Council then proceeded to the consideration of the case of John Evans, of High-street, Yiewsley, Middlesex, M.R.C.S. Eng., L.R.C.P. Lond., who had been summoned to appear before the Council on the following charge:—

> "That, being a registered medical practitioner, you issued seventy-nine medical certificates required for National Health Insurance purposes (Form Med. 40 Revised) to an insured person—namely, one George Stevens—in respect of the period from Sept. 5th, 1923, to March 11th, 1924, including the final certificate dated March 11th, 1924, without seeing the said George Stevens on or between these dates and without any medical examination of the said George Stevens, such certificates being untrue, misleading, or improper. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council's solicitor showed that the offence mentioned in the charge had been the subject of an inquiry by the Insurance Committee, and that Mr. Evans had been fined £30 by the Minister as a result of the findings of the Insurance Committee and that the documents with regard to the inquiry had been forwarded to the General Medical Council. Mr. Williams, solicitor, appeared for Mr. Evans and subnitted declarations from Mr. Evans, from the dispenser of Mr. Evans, and from the patient, George Stevens, all three of whom were called as witnesses. Mr. Evans stated that Stevens suffered from obscure abdominal symptoms and that, not being satisfied with his progress, he recommended him to attend St. Mary's Hospital, but continued to issue weekly certificates stating that Stevens was unable to work during the period mentioned in the charge because he thought Stevens was still attending the hospital. He thought it was his duty to issue these certificates as panel doctor because Stevens would be unable to obtain his money without the certificates. The dispenser gave evidence that the weekly certificates were usually called for by Stevens's daughter, aged about 14, or Stevens's son, aged about 10, and that she frequently asked the children if their ather was still attending the hospital. The patient, George Stevens, stated that he was asked to visit the regional officer on March 11th, 1924, and that he was informed that he was fit for light work. He then visited Mr. Evans and received the final certificate. Mr. Evans admitted that he had seldom seen Stevens during the whole period of the issue of the weekly ertificates, although each certificate certified that he, Mr. Evans, had seen Stevens on the date of issue of each certificate.

The Council deliberated on the case in camera. The President announced its decision. The Council ound that the charge was not proved with regard o the final certificate, but that it was proved with egard to the bulk of the certificates. The Council onsidered there had been very great laxity in the ssue of these certificates deserving of severe censure. They took a serious view of the case and judgment would be postponed until the session of the Council n November, 1925, when Mr. Evans would be required o submit testimonials as to his conduct from professional brethren or other persons of repute.

The Case of William Lovell.—The Council proceeded o the consideration of the case of William Lovell, egistered as of Westbere-road, West Hampstead, N.W., L.S.A. Lond., M.R.C.S. Eng., L.R.C.P. Lond., who had been summoned to appear before the Council n the following charges :—

(*a*) "That you have been convicted of the following isdemeanours, viz.: (1) On Sept. 15th, 1905, at the West London Police-court, of being drunk and disorderly, or which you were fined 7*s.* 6*d.*; (2) on Sept. 19th, 1913, t the Marylebone Police-court (under the name and escription of Harry Johnson, clerk), of being drunk, for which you were fined 5*s.* and 18*s.* costs ; and (3) on April 4th, 917, at the Marylebone Police-court, of being drunk, for which you were fined 10*s.* ; and

(*b*) "That, being a registered medical practitioner, and a Lieutenant in the Royal Army Medical Corps, you were on April 5th, 1918, tried by a general court-martial in East Africa on a charge of drunkenness whilst on active service, f which charge you were found guilty and sentenced to be ismissed from His Majesty's Service, the finding and entence being duly confirmed.

"And that in relation to the facts so alleged you have been uilty of infamous conduct in a professional respect."

The Council's solicitor showed that various letters f apology had been received from Mr. Lovell with egard to the charges, and that in 1918 Mr. Lovell's ame had been erased from the Register owing to umour that he was dead. Two letters were put in from Mr. Lovell and his wife, but Mr. Lovell did not attend.

The Council deliberated on the case in camera, nd the President announced its decision that the harges were found to be proved and that the egistrar had been directed to erase the name of William Lovell from the Medical Register.

The Case of Charles Adolphus Sampson.—The ouncil proceeded to the consideration of the case of harles Adolphus Sampson, registered as of Harley-reet, London, W., L.S.A., L.M.S.S.A. Lond., who ad been summoned to appear before the Council n the following charge :—

"That, being a registered medical practitioner, you have ught to obtain patients or to promote your own professonal advantage by means of an article contributed by you to the *Daily Express* of Sept. 4th, 1924, entitled 'Psycho-Analysis is Dead, by Dr. Charles Sampson (Director of the London Clinic of Applied Psychology and Psycho-therapy).' And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Mr. Oswald Hempson, solicitor of the Medical Defence Union, appeared for Mr. Sampson. The Council's solicitor read extracts from the article in the *Daily Express*. Mr. Sampson gave evidence in his own behalf. He said his was a consulting and treatment practice and that he only saw cases sent to him by other doctors. He explained the genesis of his article. An article by Dr. Herbert Bousfield appeared in the *Sunday Express* boosting "Psycho-analysis." In consequence he had requests from patients and also verbal requests from medical colleagues to answer the article. He rang up the *Sunday Express* and asked if they would be willing to insert an article by him as a rejoinder to Dr. Bousfield's article. They agreed to do so and he prepared his article and sent it in. He heard nothing more until on returning from abroad he was informed that the article had appeared in the *Daily Express*, and was congratulated by the editor of a medical paper on his article. He rang up the *Sunday Express* but was unable to find out how his article had got into the *Daily Express*. The change of paper did not fulfil his purpose as the article no longer appeared as a rejoinder to the article of Dr. Bousfield. The sub-headings in the article were not his and no proof was submitted to him for correction. He was surprised to receive a cheque for £3 3*s.* for the article, as he had expected no payment. In answer to the President, he said the article was not intended to be self-laudatory or egotistical, but his desire was to show forcibly the harm done by psycho-analysis. He had no influx of patients since the writing of the article and still only saw cases sent him by other doctors. The clinic referred to in the article was carried on at his own house for the benefit of patients sent to him by other doctors as unable to pay fees. The clinic was conducted on the same lines as the mother-clinic in Paris, on the staff of which were many well-known French doctors. He knew several doctors in this country who were using successfully the same treatment as that adopted at the London and the Paris clinic. The London clinic was established in 1908. Sir Herbert Waterhouse testified in favour of Mr. Sampson, whom he had known for 23 years. He knew that Mr. Sampson had treated many soldiers suffering from shell-shock and many hysterical women at his clinic and had taken an infinity of trouble without getting a penny for it. Dr. Hubert Roberts (senior surgeon, Queen Charlotte's Hospital) also expressed his high opinion of Mr. Sampson and his work. He had known Mr. Sampson for five years and had seen a good deal of him as Mr. Sampson was actually his tenant. Mr. Sampson was a most unlikely man to advertise himself for possible material benefit. Dr. Roberts's complaint against him was, on the contrary, that he made appointments with paying patients and failed to keep them.

The Council deliberated on the case in camera. The President announced its decision. The Council found the charge with regard to the writing of the article to be proved and thought it was a most improper article to communicate to the lay press. The Council, however, did not think that Mr. Sampson had written the article for the purpose of obtaining patients or self-advertisement, and accepted his assurance that he would be more careful in future, and the testimony in his favour given by his medical colleagues. There would be no judgment.

THURSDAY, NOV. 27TH.

The Case of Patrick Joseph Corcoran.—The Council then proceeded to the consideration of the case of Patrick Joseph Corcoran, registered as of Ballycastle, Co. Mayo, M.B., B.Ch., N.U. Irel., who had been summoned to appear before the Council on the following charge :—

(*a*) "That, being a registered medical practitioner, and a Lieutenant in the Royal Army Medical Corps, you were on

March 15th, 1915, tried by a general court-martial on a charge of having been drunk at Bethune, of which charge you were found guilty and sentenced to be dismissed from His Majesty's Service. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

(*b*) "And that you have been convicted of the following misdemeanours, viz.: On July 23rd, 1924, at the Clerkenwell Police-court, of being drunk whilst in charge of a motor-car, for which you were fined 40*s*. and £10 10*s*. costs, and your licence was suspended for three months and endorsed; and on August 14th, 1924, at the South-Western Police-court, of driving a motor-car negligently, for which you were fined £5 and £5 5*s*. costs."

Mr. Hempson, of the Medical Defence Union, appeared for Dr. Corcoran. The facts of the court-martial were reported to the Council by the Judge Advocate-General, who also reported that Dr. Corcoran had been reappointed to a commission on Nov. 9th, 1918. Dr. Corcoran gave evidence in his own behalf and stated that he was ordered to France in October, 1914. He was first sent to a base hospital and volunteered for the front. When on a day's leave at Bethune he dined with friends. At this time recruiting in Ireland was bad and he lost his temper owing to some insulting remarks made about his country. He was court-martialled and did not attempt to defend himself. He was reinstated in the army in 1918 and gazetted out as captain in 1920. He had contracted malaria during service. He was in practice at Battersea, in partnership with Dr. M. J. Macaulay. The two police-court prosecutions had reference to what occurred on July 11th, 1924. July 11th was the first day of his holidays. He was feeling the effects of the malaria and had no breakfast, but a whisky and soda instead. He had arranged to meet his people at Euston and motored in. Still feeling bad he had another whisky and soda and became unfit to drive the car. He was taken to the police-station and detained for three hours. After which he drove to Euston and conveyed his people to their rooms in Guilford-street. In the evening he drove home, and about midnight he started out to visit his partner to explain the occurrence at the police-court. He came into collision when quite sober and this constituted the second police-court charge. A letter was put in from Dr. Corcoran's partner stating that Dr. Corcoran had given complete satisfaction in the practice, and that apart from this single occurrence there was absolutely nothing against him.

The Council deliberated on the case in camera, and the President announced its decision that the Council trusted Dr. Corcoran's assurance that he would be an abstainer for the rest of his life and had not seen fit to instruct the Registrar to erase his name from the Medical Register.

The Case of Alexander Dawson Reid.—The Council then proceeded to the consideration of the case of Alexander Dawson Reid, registered as of High-street South, East Ham, E., M.B., Ch.B. Aberd., who had been summoned to appear before the Council on the following charge:—

(*a*) "That, being a registered medical practitioner, and a Lieutenant in the Royal Army Medical Corps, you were on August 16th–17th, 1917, tried by a field general court-martial on a charge of being drunk in the field, of which charge you were found guilty and sentenced to be dismissed from His Majesty's Service. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

(*b*) "And that you have been convicted of the following misdemeanours, viz.: On December 1st, 1919, at the East Ham Police-court, of being drunk whilst in charge of a motor-car, for which you were fined 40*s*. and 7*s*. 6*d*. doctor's fee, or 31 days' imprisonment; on Feb. 9th, 1923, at the Stratford Police-court, of being found drunk, for which you were fined 10*s*. and £2 2*s*. costs, or fourteen days' imprisonment; and on Sept. 16th, 1924, at the West Ham Police-court, of driving a motor-car in a dangerous manner, for which you were fined £15, or two months' imprisonment."

Mr. Hempson, of the Medical Defence Union, appeared for Dr. Reid. Mr. Harper, the Council's solicitor, wished to amend the charge on the information received from the Judge Advocate-General that there had been two court-martials in the case of Dr. Reid. The first court-martial was on May 9th, 1917, and resulted in forfeiture of seniority of rank. The second court-martial was in Palestine. In both cases the charge was of being drunk. Dr. Reid gave evidence in his own behalf and explained that as the result of an attack of blood poisoning he had become subject to giddiness. At the time of the first court-martial he was just recovering from enteric fever and had heard of the death of his brother in France. He had had some whisky, came out of the club, and was getting into a trap when the pony started. He fell into the trap and a senior officer who saw the occurrence assumed that he was drunk. Dr. Reid also denied that he was drunk on the occasion charged at the second court-martial. He was surprised at receiving the notice of the second court-martial and resigned his commission. The court-martial was held, nevertheless, and he pleaded "Not guilty." He attributed the results to the fact that his physical disabilities were not understood. After leaving the Service he took a practice at East Ham which he had had for seven years, and worked up from £500 to £1400 in value. He denied that he had been drunk on any of the occasions included in the police-court charges. On the third occasion he was charged with being drunk, but this charge was quashed on appeal, and Sir J. Purves Stewart gave evidence as to his liability to attacks of giddiness. Evidence was given in support of Dr. Reid by a medical friend, who had known him as a student and was able to speak as to the great change in him as the result of the attack of blood poisoning. Mr. Robert Crosby, manager of Barclay's Bank at East Ham, who had known Dr. Reid intimately for seven years, and a veterinary surgeon in East Ham, who had known him intimately for two years, gave evidence as to Dr. Reid's habitual abstemiousness. Mr. Hempson pointed out that the only occasion on which Dr. Reid had made an appeal against the conviction for drunkenness had been successful. It was admitted that he had had some drink on each of the occasions referred to, but if a man with his physical disabilities smelt of drink it was quite sufficient for a stranger to assume that he was drunk.

The Council deliberated on the case in camera, and the President announced its decision that the Council found the charges proved, but under the circumstances had decided to postpone judgment for 12 months, at the end of which time Dr. Reid would be required to produce the evidence of persons of repute in his neighbourhood as to his conduct. Dr. Reid gave an assurance to the Council that he would abstain altogether from alcohol in the future.

The Case of David Williamson Anderson.—The Council then proceeded to the consideration of the case of David Williamson Anderson, registered as of Princess-road, Seaham Harbour, Co. Durham, L.R.C.P., L.R.C.S. Edin. L.F.P.S. Glasg., who had been summoned to appear before the Council on the following charge:—

"That you have been convicted of the following misdemeanours, viz.:—

"(*a*) On April 10th, 1923, at the Newcastle-upon-Tyne Police-court, of being drunk, for which you were fined 10*s*.

"(*b*) On May 8th, 1924, at the South Shields Police-court, of being drunk whilst in charge of a motor-car, for which you were fined 10*s*., and ordered to pay for use of ambulance; and

"(*c*) On July 10th, 1924, at the Gateshead Police-court: (1) Of being drunk in charge of a motor-car, for which you were fined 40*s*., or fourteen days' imprisonment; (2) of driving to the danger of the public, in contravention of the Motor Car Act, 1903, for which you were fined £20 and ordered to pay the solicitor's fee of £2 2*s*. and witnesses' fees of £1 16*s*., or fourteen days' imprisonment; and (3) of failing to give audible warning, in contravention of the Motor Cars (Use and Construction) Order, 1904, for which you were fined 20*s*., or 14 days' imprisonment."

Mr. Harper, the Council's solicitor, stated that no defence or answer had been sent in by Mr. Anderson, who was not present. Mr. Anderson had, however been in attendance during the previous day.

The Council deliberated on the case in camera, nd the President announced its decision to adjourn e case until the following day in order to give r. Anderson another chance of being present.

The Cases of John Joseph Brennan, Francis Pulteney lood, and Vivian Thomas Pearce Webster.—The ouncil then proceeded to the consideration of the llowing three cases, taken together. (1) John oseph Brennan, of Maeryrhaf, Merthyr Tydfil, .R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., who had een summoned to appear before the Council on the llowing charge :—

"That, being a registered medical practitioner, you signed nd issued a certificate dated March 26th, 1924, that one illiam Jones was suffering from weakness after abscess of kle and required temporary relief, whereas you had not en or examined the said William Jones, which certificate as untrue, misleading, or improper. And that in relation the facts so alleged you have been guilty of infamous nduct in a professional respect."

(2) Francis Pulteney Flood, of Frondeg, Merthyr ydfil, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A. Lond., ho had been summoned to appear before the Council n the following charge :—

"That, being a registered medical practitioner, you signed nd issued a certificate or statement dated May 14th, 1924, ating that one William Jones was unable to work, whereas u had not seen or examined the said William Jones, which rtificate was untrue, misleading, or improper. And that relation to the facts so alleged you have been guilty of famous conduct in a professional respect."

(3) Vivian Thomas Pearce Webster, of Tygwyn, erthyr Tydfil, M.R.C.S. Eng., L.R.C.P. Lond., who ad been summoned to appear before the Council on he following charge :—

"That, being a registered medical practitioner, you gned and issued five certificates or statements dated pril 9th and 12th, May 21st and 27th, and June 11th, 24, stating, as regards the first three, that one William ones had been idle for three weeks and, as regards the st two, that he was suffering from a chronic ulcer of the g and was unable to work regularly, whereas you had not en or examined the said William Jones except, possibly, one occasion, which certificates or statements were untrue, isleading, or improper. And that in relation to the facts alleged you have been guilty of infamous conduct in a rofessional respect."

Mr. Le Brasseur appeared for Mr. Brennan privately, nd for Mr. Flood and Mr. Webster, acting on behalf f the London and Counties Medical Protection ocieties, and raised the point that there was no vidence against Mr. Flood. The President agreed nd Mr. Flood was discharged from the case. Mr. arper, the Council's solicitor, explained that the two harges arose out of the prosecution of a Mrs. Jones, f Merthyr Tydfil, for obtaining about £20 in poor lief on the grounds that her husband was ill and nable to work, whereas during most of the period e was earning £2 a week or more. Mr. Harper ead a newspaper account of the proceedings before he stipendiary magistrate, from which it appeared hat Mrs. Jones had been enabled to get her poor lief through the certificates forming the subjects of he charge. The magistrate severely criticised the xity shown by the doctors in granting these certicates and suggested that they ought to repay the 20 to the guardians. He, the magistrate, was in difficult position, because he could not fine Mrs. ones or send her to prison, her husband's earnings ere not sufficient to keep her and her eight children, nd fine or imprisonment would make the position f the children worse. Mr. Webster stated that he ttended the Jones family gratuitously. He was ot the Poor-law doctor and Jones was not on his anel. Mrs. Jones called him in when he was visiting ear her house to look at her husband's ankle, hich was ulcerated. He considered that Jones was nfit to work and he gave the certificates out of indness to help Mrs. Jones to get the relief to which he appeared to be entitled. He had no idea that ones was going to work during the period covered y the certificates and realised now that what he had ertified was untrue. Mr. Brennan stated that he was the Poor-law officer for the district. When Mrs. Jones called to see him with a note from the relieving officer and Mr. Webster's certificate he was very busy and could not have visited Jones that day. He therefore gave a certificate without seeing Jones, relying on the certificate of Mr. Webster in order to enable Mrs. Jones to get her relief promptly. The Jones family lived about three miles from his house and he had seen Jones about 18 months before when vaccinating the baby. He had been asked to look at the ankle.

The Council deliberated on the case in camera. The President announced its decison. The Council found the facts proved against Mr. Brennan and that he had been guilty of great laxity deserving of severe censure. The Council hoped that these proceedings would act as a warning and had decided to postpone judgment for six months, at the end of which time the usual testimony as to conduct, especially as to the granting of certificates, would have to be produced. The Council also found the facts proved against Mr. Webster and that he, too, had acted laxly. In his case, too, judgment would be postponed for six months, at the end of which time testimonials would have to be produced as to conduct.

Friday, Nov. 28th.

Erasures from the Dental Register.

There were four erasures from the Dental Register for various offences and in none was any appearance put in by the incriminated person.

The Case of David Williamson Anderson.

The President announced that this name had been removed from the Register.

Reports Submitted.

Reports from the following Committees were received : Public Health Committee, Pharmacopœia Committee, Education Committee, Examination Committee, and Dental Examination and Education Committee, as well as one from the Finance Committee.

Broadcasting.

The Council considered in camera the position of registered medical practitioners delivering public addresses for purposes of broadcasting. The matter was brought before them at the previous session, but no public announcement was made.

The Council rose on Friday afternoon.

The Direct Representatives to the Council.

At the meeting of the Branch Council for England, held on Nov. 25th, Sir Donald MacAlister, the Chairman, announced that the following was the result of the voting at the election of Direct Representatives for England to be members of the General Medical Council :—

HENRY BRITTEN BRACKENBURY, M.R.C.S.	11,486
ROBERT ALFRED BOLAM, O.B.E., M.D.	10,087
Sir THOMAS JENNER VERRALL, M.R.C.S.	9620
JAMES ALEXANDER MACDONALD, M.D.	9143
Frederic Hibbert Westmacott, C.B.E., F.R.C.S.	3310
Henry Jasper Cardale, M.B.	2953
Robert Fielding-Ould, M.D.	2833
Gordon Reginald Ward, M.R.C.S.	2685
Harry François Devis, M.R.C.S.	2580
Edward Andrew Gregg, L.R.C.P. & S.	2125
John Brown, M.D.	1089

The first four will consequently be Direct Representatives for five years from Jan. 1st, 1925.

Sir Malcolm Morris Memorial Fund. — The hon. secretary of the committee announces that Sir John Broadbent and Dr. Ronald C. Macfie have sent donations to this Fund. The total subscribed to date is £479 6*s.* 2*d.*, and the committee earnestly hope that this sum will be made up to £500 at an early date as it has been decided to close the appeal at the end of December. Further subscriptions to that end will be very gratefully acknowledged if forwarded to the hon. treasurers, "Sir Malcolm Morris Memorial Fund," at 12, Stratford-place, London, W. 1.

Correspondence.

"Audi alteram partem."

GENERAL MEDICAL COUNCIL ELECTION.

To the Editor of The Lancet.

Sir,—Will you allow us to express our united thanks to the registered medical practitioners—electors in England and Wales—who have given us so marked a proof of their confidence in the election just concluded? We offer our assurance of continued endeavour as their Direct Representatives on the General Council to look after their interests during the period of office which begins next year.

We are, Sir, yours faithfully,
R. A. Bolam.
H. B. Brackenbury.
J. A. Macdonald.
T. Jenner Verrall.

Dec. 1st, 1924.

THE INFLUENCE OF THE VAGUS CENTRE IN CHLOROFORM NARCOSIS.

To the Editor of The Lancet.

Sir,—The action of chloroform on the vagus centre and on the heart has been studied by many observers, but the interpretation of its effect is in some respects still doubtful. In the course of experiments on some 150 dogs in recent years, I have remarked certain symptoms which are not satisfactorily explained by the present views on the subject. In some animals (used for bleeding purposes only) chloroform constituted the sole anæsthetic given, and those referred to in this note belong exclusively to that category. The process of bleeding the first dog for heart-lung work is usually a hurried one, owing to the exigencies of the main operation. The chloroform at first causes inhibition of respiration, and this is followed by deep inspirations with which it is all too easy to give an overdose. In such a case, when the respiration and heart beats stop, the usual procedure is to make an opening in the abdominal wall, insert the finger, and massage the ventricle through the intact diaphragm, using the other hand as a *point d'appui*, and at the same time making the hand serve to effect artificial respiration, with the tongue pulled out, &c. Sometimes it is necessary to attach the respiratory pump to the trachea. Occasionally the respiration returns without restoration of the heart beat, but, this again failing, the animal may die. Respirations of this sort are evoked reflexly by the somatic and vagus nerves, the lung being pressed as well as the thoracic walls and the centre recovering some of its reflex excitability.

I have elsewhere[1] drawn attention to the necessity of distinguishing between reflex excitability and tone when testing the effects of hæmorrhage on bulbar centres, McWilliam having made a similar distinction when testing the effects of chloroform.[2] There are differences in the resistance and recuperative power of the bulbar centres, as has been shown by the writer,[1] by Bayliss,[3] and others, and the respiratory centre shows variations like the vaso-motor and the cardio-inhibitor. The breathing referred to above as occurring during massage is rhythmical, not of the gasping type seen as the centre is failing with anæmia or asphyxia. The stoppage of the heart occurs early in the administration, and is not due to toxic effect on the muscle of the walls. Its causation will be discussed in a moment. McWilliam, working on cats, found that stimulation of afferent nerves may cause temporary standstill of the heart under chloroform, but it is a reflex which he found very difficult to elicit. He also attributes stoppage to the effect of asphyxial blood, but beyond these two aspects of arrested beat he deals simply with variations of rate short of cessation. He goes so far as to say that the vagus centre is not necessarily paralysed in deep chloroform narcosis, in which its tone may be active. Dogiel[4] says chloroform first stimulates the vagus and then paralyses it. Kappeler[4] noted that the heart beat faster on cutting the vagi in fairly deep narcosis. Pharmacologists generally admit a transitory excitation of the vagus by the drug, and this is interpreted in a recent work on the subject[5] as due to a hyperexcitable state of the medulla "when freed from the restraining influence of the higher centres." The greatly increased excitability in response to extraneous stimuli is here looked upon as the cause of slowing of the heart. There is no suggestion of a direct stimulation of the cardio-inhibitor centre by which its tone is increased, but such direct action, it seems to me, will best explain the facts.

In some four or five animals the conditions, accidentally occurring or purposely produced, were as follows: The heart in complete standstill was massaged without effect for periods of half to one minute when an assistant was directed to cut the vagi, previously exposed or after a short delay for dissection. Section of one nerve caused either the occurrence of a few spontaneous beats or beats in response to pressure, but the section of the second trunk instantly set up a rapid and forcible rhythm. In other instances where the drug was pushed to produce like effects, cutting of the nerves was followed either by a few beats or by no change, and it was only after the use of the respiratory pump and squeezing the heart through an opening in the diaphragm that rhythmic beats were restored, very slowly and irregularly. In such cases as these the musculature was obviously affected by the drug, and even then some vagus tone was evident. This excessive tone of the centre not only holds up rhythmic activity, but prevents response to mechanical stimulation. It is remarkable that the condition may last long enough to cause ultimate failure of the heart at a time when the respiratory centre seems capable of responding to a due supply of blood and to reflex stimulation.

The chief indication for treatment is to cut off the tonic impulses from the centre. Injection of atropine with an arrested circulation must be useless. In the work already referred to[1] it has been shown how to block conduction in the exposed vagus nerve without injury to its functions—namely, by the passage of a constant current through it of E.M.F. about one volt. Function is quickly and fully restored on breaking the circuit, whereas the method of freezing the nerve for this purpose leaves conductivity depressed for a long time afterwards or even abolished in some cases. I have not been able to test the possibilities of this method by application through the unbroken skin.

I am, Sir, yours faithfully,
D. T. Barry, M.D., D.Sc., F.R.C.S.

Cork, Nov. 29th, 1924.

LABORATORY CHANGES AT A HOSPITAL.

To the Editor of The Lancet.

Sir,—The attention of the Medical Committee a the Hospital for Epilepsy and Paralysis has bee drawn to the letter in your issue of Nov. 22nd signe by Drs. J. G. Greenfield, D. Nabarro, and A. Piney They do not consider it necessary to defend th principle of a hospital laboratory undertaking clinico pathological work for "*medical practitioners for th benefit of their patients who are not in a position t pay the usual charges*," which the circular complained of states. With regard to the staff of th laboratory, in the same issue of The Lancet, p. 1102 will be found a paragraph explaining shortly th scheme and personnel of the laboratory which has recently been opened.

We are at present fortunate in the fact that ou honorary pathologist is able to spend most of ever day at the hospital. His chief assistant is an M.Sc. Lond., an honours graduate, who for 15 months studied at the Central Pathological Laboratory of the London County Council under Sir Frederick Mott, and later under Dr. Golla, and is undoubtedly a highly qualified biochemist, with special bacteriological training in this laboratory, which draws its material from about 25,000 beds.

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[1] Barry: Brit. Jour. Exp. Path., 1923, iv., 92.
[2] McWilliam: Jour. Physiol., 1900, xxv., 233.
[3] Bayliss: Intravenous Injection in Wound Shock. London: Longmans. 1918.
[4] Dogiel: Quoted by McWilliam, loc. cit.
[5] Cow: Pharmacology, p. 51. London: Churchill. 1920.

The Medical Committee are highly satisfied with the way in which the laboratory is working, both for the hospital and for those private practitioners who have already made use of its facilities.

I am, Sir, yours faithfully,
H. W. BURLEIGH,
Secretary and General Superintendent, Hospital for Epilepsy and Paralysis, Maida Vale, W.
Nov. 26th, 1924.

PS.—Since the Medical Committee drafted the above letter, which was too late for insertion in your issue of last week, another letter signed by Dr. J. A. Murray has appeared on the same subject. This adds nothing to what was said before, as Dr. Murray also has not ascertained the facts from the hospital.

Nov. 29th, 1924. H. W. B.

THE EFFECT OF SPLENECTOMY ON THE PRODUCTION OF EXPERIMENTAL PURPURA.

To the Editor of THE LANCET.

SIR,—The authority with which Dr. S. P. Bedson writes on the subject of blood platelets is fully recognised, and his article on the above subject in THE LANCET (Nov. 29th, p. 1117) is an interesting and valuable addition to the reports of his experimental work. When, however, he extends his conclusions to the clinical field and writes that "(5) splenectomy cannot be relied on to give any but temporary relief in the treatment of purpura hæmorrhagica," he goes too far.

In the first place, experiments dealing with the artificial production of purpura in animals cannot be accepted as settling the question of the treatment of acquired purpura hæmorrhagica in human beings. Secondly, splenectomy has afforded far more than temporary relief as a treatment for purpura hæmorrhagica. Kaznelson's patient, the first case operated on, had had no recurrence of the disease five years later. Other cases, recorded in America, have remained free from any symptoms of the disease (purpura hæmorrhagica) up to the date of publication—namely, from 6 to 12 months after the operation. American writers hold strongly that splenectomy is a really curative treatment in the thrombocytopenic type of purpura hæmorrhagica.

I am, Sir, yours faithfully,
London, Dec. 1st, 1924. G. A. SUTHERLAND.

THE ALLEGED STERILITY OF PRESENT-DAY BACTERIOLOGY.

To the Editor of THE LANCET.

SIR,—It cannot be a surprise to many to find that the time has arrived when orthodoxy in bacteriology must perforce defend itself against the charge of stagnation. Dr. Ledingham's letter in your issue of Nov. 22nd (p. 1095) is probably the first of many such apologias. His easy-going disposal of the great heterodoxy of "bacterial cycles" as the offspring of an exuberant imagination and faulty technique is characteristic of the exponents of what many believe to be a dying era. Many instances could be cited of the reluctance of the community of monomorphic bacteriology to grapple with realities. Take, for example, influenza. Pfeiffer described a bacillus. Donaldson, from every case examined, obtained an extremely pleomorphic organism; it grew as bacilli and as cocci, and Donaldson suggested there might be a filtrable phase. Later Fry described yeast-like bodies which were capable of giving rise to bacilli. Wade and Manalang then discovered that under certain conditions Pfeiffer's bacillus could grow into large fungal forms, and declared the bacillus to be merely "a simple form of an organism capable of complex development." Reed and Orr confirmed these findings and showed that a simple alteration in the H-ion concentration of the medium was sufficient in all cases to induce the minute bacillus to grow into large hyphal and yeast-like forms. Olitsky and Gates added to the confusion by describing a filtrable form, but on occasions this grew as a comparatively large body. Finally Beaumont obtained a hyphomycete which grew in the following alternative phases: large spores, hyphæ, cocci, and bacilli, and suggested that influenza is really a mycosis, and that the many alternative phases in which the causal fungus could exist might "afford a means of unifying the seemingly discordant results that have been obtained by other workers." In view of all the facts is this unlikely? Monomorphic bacteriology vetoes it because bacteria are monomorphic! Henri obtained yeast, coccal and branching forms from *B. anthracis.* Monomorphic bacteriology says these are merely contaminations! Klebs and Malassez and Vignal many years ago described an amorphous and granular phase of the tubercle bacillus. During 40 years these observations were out of keeping with the dictates of monomorphism and they were submerged. Recently Valtis, Vanucci, and others have described a filtrable phase of the tubercle bacillus. Nothing but faulty technique! Löhnis, in a massive piece of work, has shown that many bacteria can grow alternatively as bacilli, cocci, yeasts, &c., and he has claimed that the secret of bacterial morphology is the bacterial plasm, from which, just as from the germ-plasm of higher organisms, a variety of differentiated elements, each capable of true-to-type propagation, can be obtained. They can grow as separate and distinct entities in separate test-tubes just as, from the same animal, the epithelial cells of the kidney can grow in one tube and the connective-tissue cells in another.

Is all this, and a hundred and one similar observations by other careful workers, merely a tissue of self-deceptions originating in an exuberant imagination and a faulty technique? Is it not rather one of those great facts that usher in a new era?

I am, Sir, yours faithfully,
Edinburgh, Nov. 27th, 1924. JAMES YOUNG.

THE CLINICAL SIGNIFICANCE OF CONSTIPATION.

To the Editor of THE LANCET.

SIR,—When we treat a patient for constipation, our aim in doing so is to save him from absorbing intestinal toxins, the condition being one that may be dependent upon a person's habits of life or upon individual idiosyncrasy. Many people take only two meals a day, and will defæcate less often than those whose meals number three or four. Dr. A. Hurst, in Constipation and its Allied Disorders, gives 40 hours as the limit, and calls a condition in which the action of the bowels is deferred beyond this period constipation.

It is important to note that, if the evils of constipation are admitted, it by no means follows conversely that easy and free habits in this respect necessarily denote health. The most remarkable case of cancer of the colon that I ever remember occurred in a man who had never in his life suffered from constipation; his usual habit being two easy actions daily. Whilst apparently in perfect health he was suddenly seized with complete obstruction, a laparotomy revealing a growth at the sigmoid flexure of the colon. The vast majority of those who suffer from intestinal putrefaction and its consequences, so far from being constipated, are accustomed to two or three soft, badly coloured, slightly offensive motions daily; and in dealing with the functions of the lower bowel, the only safe method to employ is to subject the fæces to chemical and bacteriological examination. A very frequent type of stool is alkaline in reaction, and contains Gram-positive organisms far in excess of the normal. This is, I think, invariably an indication for the use in treatment of soured milk—that is to say, milk, the sugar of which has undergone lactic fermentation. Clinically this condition may be associated either with constipation or the reverse. (Incidentally such cases do very well with a tablespoonful of raw oatmeal taken in the morning, owing to the fact that the starch granules are not broken up until they reach the lower bowel, where they furnish a pabulum upon which lactic acid organisms flourish abundantly.)

As the result of several years' observation in general practice, I think that the man who habitually has one well formed, possibly even rather hard motion daily, of good colour, is far more likely to be healthy—that is to say, to resist the ravages of chronic infections—than he who has two or three soft motions, and who probably prides himself on the fact. The latter is in all probability suffering to some extent from either carbohydrate or protein putrefaction, a condition which very slowly and insidiously will produce those changes associated in the lay press and in many minds with constipation. As the result of propaganda, and the diffusion of medical knowledge, there has already been evolved the type of person who tells one with pride of his two or three daily sacrifices to cloacina, and who expects to be cured quickly and kept alive to a green old age in consequence.

The evil-producing qualities of a stool depend far more upon a departure from normal of its bacterial content than upon its consistency or frequency, and in treating this particular function of the human body the help of the pathologist should more frequently be sought.—I am, Sir, yours faithfully,

Reading, Nov. 27th, 1924. **E. G. March.**

PATHOLOGY OF NEPHRITIS.

To the Editor of The Lancet.

Sir,—In the review appearing in your issue of Nov. 22nd of an article of mine in the October issue of the *Quarterly Journal of Medicine* I am credited with the statement that all my cases of nephritis "might, had not death intervened, have conformed to the chronic interstitial type." May I be permitted to point out that this is exactly what I did not state? Actually my communication took the form of an attempt to demonstrate the existence of two types of "chronic parenchymatous nephritis," one of which, barring accidents, tended to recovery, while the other proceeded inevitably to the "chronic interstitial" stage. I am, Sir, yours faithfully,

Wolverhampton, Nov. 29th, 1924. **S. C. Dyke.**

"A DISCLAIMER."

To the Editor of The Lancet.

Sir,—I have seen the letter from Dr. Knyvett Gordon, of the Virol Laboratories, under this heading in your issue of Nov. 22nd, and I have to say only that I could have wished that, for his own sake, he had not contented himself with quoting a single casual sentence from my letter, but had added that I began it with a frank apology and expression of regret if I had inadvertently omitted any usual courtesy in quoting him without previously asking his consent. The quotation itself clearly shows more than once that he favours vaccine-therapy, as opposed to chemo-therapy: and therefore I cannot believe that any ordinary reader of the pamphlet would gather an impression that Dr. Gordon could be by it associated with my own views on the employment of intestinal bactericides. My one and only object in quoting him was to show, as I said, that his expressed opinion "affords striking evidence of the influence of systemic infection in pyorrhœa."

In the same brief pamphlet I had occasion to quote Mr. Peyton Beale, Dr. Alexander Bryce, and Mr. Garnett Ellis; and I still cannot help feeling that I did pay, to at least some little extent, a real compliment to Dr. Gordon by placing him with these authorities. But my one complaint is that a solitary sentence should be torn out of my reply to his protest, and the ready expression of regret, and a promise to consult him in any future case, be omitted. Such a letter conveys a quite unfair impression. Of course, there are various standards of fairness in public controversy: Dr. Gordon has chosen his, and I must leave your readers to decide whether he has chosen well.

I am, Sir, yours faithfully,
J. T. Ainslie Walker, F.I.C., F.C.S.
Ludgate Hill, London, E.C., Nov. 25th, 1924.

To the Editor of The Lancet.

Sir,—I am obliged to you for letting me see Mr. Ainslie Walker's reply to my disclaimer. There was no point in reproducing the whole of his letter, so I quoted the sentence that mattered. It is true that Mr. Ainslie Walker stated that if he had inadvertently omitted any courtesy customary between scientific investigators he regretted and apologised, but he went on to justify his quotation from my article without my consent and even described that procedure as a compliment. I objected because the pamphlet was not a scientific publication but a commercial advertisement. The extract appeared in a pamphlet advocating dimol, and has, in fact, actually led to my being credited with thinking favourably of that drug when I happen not to do so.

The fact that other writers were so treated does not seem to me relevant.

I am, Sir, yours faithfully,
A. Knyvett Gordon, M.B., B.C., B.A. Camb.
Bedford-square, W.C., Nov. 29th, 1924.

INSUFFLATION OF THE FALLOPIAN TUBES.

To the Editor of The Lancet.

Sir,—My friend, Mr. Victor Bonney, is in error in supposing that the simple method—described in The Lancet, Nov. 22nd—which he has been using, apparently for a few months only, is new. I have employed this procedure since 1921; and I think I am right in saying that Dickinson and others in the United States have also long practised insufflation of the tubes in the same way.

The use of air has one disadvantage—namely, there is more and longer-continued pain subsequently than after insufflation with CO_2. I agree with Mr. Bonney that there are unsuspected lesions capable of producing sterility that can only be discovered by insufflation; but as I hope before long to publish in conjunction with some of my colleagues our experiences I shall not dwell on them here.

I am, Sir, yours faithfully,

Liverpool, Nov. 23rd, 1924. **W. Blair Bell.**

PITUITARY WHOLE GLAND IN CONSTIPATION.

To the Editor of The Lancet.

Sir,—Although experimental physiologists tell us that whole pituitary gland when administered to animals in the laboratory produces no effects, its clinical administration to human beings seems to be attended in many cases with well-marked results. In The Lancet of Oct. 18th Dr. Bernard Myers reported its successful clinical use in a case of chronic constipation, and I now record another case of chronic constipation similarly treated.

A. B., a healthy European male adult of about 30 years, had suffered for some years with chronic constipation. He led an active, vigorous life, and had tried most of the various known purgatives, including liquid extract of cascara sagrada, but had failed to secure permanent relief. On being consulted I surmised that the case might then be partly due to muscular atony of the bowel induced by chronic overloading (intestinal stasis). Being aware of the physiological action on the bowel of subcutaneous injections of extract of the posterior lobe of the pituitary gland, I determined to try the effect of the administration of whole gland substance by mouth—daily subcutaneous injections of pituitrin in such a case being out of the question. One tabloid of whole pituitary gland, gr. 2, was therefore prescribed t.i.d., and within two months the patient reported his condition cured.

This took place in the year 1913, and lapse of time has abundantly proved the cure to be permanent. Since then I have prescribed whole pituitary gland in several other such cases, and also in many cases of post-operative atony of the bowel with constipation, similarly successful results being achieved in all. In the nervous and physical exhaustion following operations I have also found whole pituitary gland of the greatest value. In India it is particularly useful in the mental and physical exhaustion produced by continuous residence in the plains during the hot season of the year.

I am, Sir, yours faithfully,
J. W. TOMB., M.D., D.P.H.

Asansol, Bengal, India, Nov. 12th, 1924.

INTRA-OCULAR TENSION IN MYOPIA.

To the Editor of THE LANCET.

SIR,—The conditions mentioned by Dr. J. Lawson Dick in your issue of Nov. 29th (p. 1151) are undoubtedly important contributory factors in the causation of myopia, but increased intra-ocular tension is the direct exciting cause, just as the tubercle bacillus is the direct exciting cause of tuberculosis. In the conditions mentioned by Dr. Dick it is particularly important to avoid all increase of intra-ocular tension which will obviously act more effectively with a weak eye than with a strong one. After the publication of my Arris and Gale lecture in THE LANCET I received numerous letters from ophthalmic surgeons in all parts of the world agreeing with my conclusions. What other explanation could be given of the following case? A man staying at a farm had to help to hold a bull which had become wild, and he had to exert his strength to the utmost; he ruptured himself, became myopic in a low degree in one eye and blind in the other through detachment of the retina, in the one afternoon; he stated that he had previously very good sight.

I am, Sir, yours faithfully,
F. W. EDRIDGE-GREEN.

London, Dec. 1st, 1924.

Obituary.

ROBERT JAMES LEE, M.D. CAMB.

Dr. Robert James Lee, at one time physician to the Hospital for Children, Great Ormond-street, died recently at the age of 83, at West Drayton. The son of Robert Lee, F.R.S., the famous obstetrician whose differences with the Royal Society caused much stir in their time, he received his early education at King's College School, London, and Brighton College, and went up to Gonville and Caius College, Cambridge, as a Tancred Student. He studied medicine at St. George's Hospital, St. Thomas's Hospital, and in Paris, becoming an M.D. Camb. in 1869 and a Fellow of the Royal College of Physicians of London in 1874, in which year he was appointed Goulstonian lecturer. His first appointment was as lecturer in pathology and forensic medicine at Westminster Hospital, and later he became joint lecturer in obstetric medicine and assistant obstetric physician at St. George's Hospital, taking for his subject in the Goulstonian lectures, Puerperal Fever. Dr. Lee was an early contributor to the columns of THE LANCET, following the precedent of his father, and many of the lectures he delivered to his students appeared in our pages. In 1873 he published a work on "Exercise and Training, their Effects upon Health," in which he distinguished two kinds of fatigue—local or muscular fatigue and general fatigue or loss of wind—and in which he gave some valuable hygienic rules to be observed while training. In 1876 appeared the "History, Diagnosis, and Treatment of Whooping-cough," and three years later he compiled a small text-book for students on pathological anatomy. In 1889 he published a series of lectures on the "Transmission of Syphilis from Parents to Offspring," which followed the publication of his lectures at the Great Ormond-street Sick Children's Hospital during the years 1884–5–6, and several of his papers on scientific and medical subjects are recorded in the Proceedings of the Royal Society and elsewhere.

Dr. Lee was an enthusiastic athlete, both on the running-track and as an oarsman. He never fulfilled his early promise, either as a general physician or a specialist, largely because he was distinctly difficult. He resigned his Fellowship of the Royal College of Physicians of London, and lived for many years in retirement.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Honours.—Frank B. Byrom (*a*), London Hosp.; Lawrence Dulake (*b*, *d*, University Medal), King's Coll. Hosp.; John Angell James (*a*), University of Bristol; Richard J. Toleman (*a*), London Hosp.; and Mary M. Turnbull (*a*), King's Coll. Hosp.

(*a*) Distinguished in Medicine. (*b*) Distinguished in Pathology. (*d*) Distinguished in Surgery.

Pass.—Katharine M. Andrew, King's Coll. Hosp.; Ruth M. Arkwright, St. Mary's Hosp.; Nehemiah Asherson, Univ. Coll. Hosp.; Alfred A. Battson, St. Thomas's Hosp.; John Bevan-Jones and Phyllis E. Bond, Univ. Coll. Hosp.; Reginald T. Brain, London Hosp.; Violet W. Brown, St. Mary's Hosp.; Frank A. Bryning, King's Coll. Hosp.; Arthur B. Cooper and Edward R. Cullinan, St. Bart.'s Hosp.; William A. Date, St. Mary's Hosp.; David J. Davies, Middlesex Hosp.; Francis Davies, Univ. Coll. Hosp.; Iforwyn G. Davies, St. Bart.'s Hosp.; Arnold F. Doyle, St. Thomas's Hosp.; Ernest F. Duck, Doris L. Durie, and David G. M. Edwards, Univ. Coll. Hosp.; John Elgood, St. Bart.'s Hosp.; Phyllis V. L. Epps, London Sch. of Med. for Women; Stewart Farquharson, St. Thomas's Hosp.; Valentine F. Farr, St. Bart.'s Hosp.; Margery Freeborough, St. Mary's Hosp.; Horace P. Goldsmith and John A. E. M. Hadley, Univ. Coll. Hosp.; Ronald Hare, St. Mary's Hosp.; John K. Hasler, Middlesex Hosp.; Sybil M. Hawkes, London Sch. of Med. for Women; Kenneth W. Heritage, London Hosp.; Elfrida L. G. Hill, Univ. Coll. Hosp.; Frances A. Hogben, University of Manchester; Barbara M. Hope, King's Coll. Hosp.; Margaret Hossell, London Sch. of Med. for Women; Audrey M. Hughes, Charing Cross Hosp.; Cyrus Ive, Guy's Hosp.; Francis J. Jauch, London and Middlesex Hosps.; Arthur E. Jenkins, St. Thomas's Hosp.; Eva M. Johnson and Alan T. Jones, Univ. Coll. Hosp.; David J. Jones, Westminster Hosp.; John W. Joule, St. Bart.'s Hosp.; Nancy R. Lewis, London Sch. of Med. for Women and St. Mary's Hosp.; Kate Madders, Harold J. Malkin, and Doris I. Mart, Univ. Coll. Hosp.; Violet E. M. Mizen, London Sch. of Med. for Women; Paul McG. Moffatt, Guy's Hosp.; Herbert V. Morlock, St. Bart.'s Hosp.; Arthur D. Morris and Herman Mould, Univ. Coll. Hosp.; Alfred L. te W. Naudé, St. Thomas's Hosp.; Frederick G. Nicholas, Middlesex Hosp.; Doris E. O'Doherty, London Sch. of Med. for Women; Patrick H. O'Donovan, London Hosp.; Cyril M. Pearce, St. Bart.'s Hosp.; John P. Peel, University of Leeds; Abraham T. W. Powell, Guy's Hosp.; Cyril S. C. Prance, St. Bart.'s Hosp.; Violet A. Quilley, London Sch. of Med. for Women; William A. Robb, St. Bart.'s Hosp.; Nina L. D. Robertson, King's Coll. Hosp.; Morris Rockfelt, Winifred M. Sampson, and Margaret B. Savory, Univ. Coll. Hosp.; George D. Shaw, Guy's Hosp.; Norman W. Snell, King's Coll. Hosp.; Dorothy M. Stewart, London Sch. of Med. for Women and St. Mary's Hosp.; Grace M. L. Summerhayes, London Sch. of Med. for Women; Dick B. Sutton, King's Coll. Hosp.; Mary A. St. Clair Swann, London Sch. of Med. for Women; Harry C. C. Taylor, Guy's Hosp.; Portia K. Taylor and Robert C. Taylor, Univ. Coll. Hosp.; Beatrice Teverson, St. Mary's Hosp.; Douglas J. Valentine, London Hosp.; Arthur H. C. Visick, St. Bart.'s Hosp.; and Henry G. Wyatt, London Hosp.

A course of three lectures on The Anatomy and Physiology of the Sympathetic Innervation of the Striated Muscle will be given at University College, by Prof. John Irvine Hunter, of the University of Sydney, at 5 P.M., on Dec. 8th, 10th, and 12th. At the first lecture the chair will be taken by Prof. G. Elliot Smith F.R.S. Admission to these lectures is free.

UNIVERSITY OF EDINBURGH.—The following candidates were successful in the recent Clinical Examination for the degree of M.D. :—

Hope P. Anderson, John Bennet, Jessie R. Brash, James D. S. Cameron, Angus H. Campbell, Sisir C. Chatterjee, John A. Douglas, Alexander D. Edington, William R. D. Fairbairn, Helen M. Hendrie, Frederick T. Ingram, Alan J. Kilgour, Ella MacKenzie, Ronald D. Mackenzie, William F. Mair, David Pottinger, Hilda D. Scott, Doreen Stranger, Thomas R. R. Todd, Edward R. C. Walker, William N. Boog Watson, J. H. Harley Williams, Alexander B. Williamson, and William M. Wilson.

OLD EPSOMIAN CLUB.—The annual dinner of the club will be held at the Trocadero Restaurant, Piccadilly Circus, on Thursday, Dec. 11th, at 7.15 P.M. Mr. George E. Waugh will be in the chair. The annual meeting will precede the dinner at the same place at 6.30 P.M. Members of the club intending to be present at the dinner are asked to notify Mr. R. M. Handfield-Jones, 53, Hamilton-terrace, St. John's Wood, N.W. 8, as soon as possible, mentioning the names of those near whom they would like to sit. The price of the dinner is 8*s.* 6*d.* (exclusive of wine), and will be collected at the table.

ROYAL SANITARY INSTITUTE: HENRY SAXON SNELL PRIZE.—The subject given for essays in competition for this prize in 1924 was Improvements in the Sanitary Conditions of Underground Dwellings and Small Underground Workshops. Eleven essays were received, including one from Canada, and they have been brought under the consideration of the Council. Acting on the advice of the adjudicators, the Council have awarded the prize of 50 guineas and the silver medal of the Institute to Mr. E. Thomas Swinson, M.R.San.I. (Feltham). Two of the other essays showed considerable merit, and the Council have decided to recognise this by making a supplementary award of a bronze medal of the Institute to each of the writers, Mr. Edward E. Barks, A.R.I.B.A. (London) and Mr. F. R. Jelley (Sutton).

MANCHESTER HOSPITAL SUNDAY FUND.—At the annual meeting of the Manchester and Salford Medical Charities the report presented showed that the income of the Sunday Fund was £14,029, the interest from investments £1275, and the amount distributed to charities £13,649. The Shrove Tuesday collections of the University students showed a persistent and satisfactory increase. In 1921 the students collected £656; in 1922, £1036; in 1923, £2017; and in 1924, £2850. Outside areas for the most part only contributed £1 out of every £2 which Manchester and Salford hospitals spent in treating outside area patients. In 1923 the number of cases treated in institutions of the Manchester and Salford Medical Charities was 295,718, at a cost of £335,591, while the ordinary income fell about £44,000 short of that expenditure.

UNIVERSITY OF LIVERPOOL.—Some interesting statements were made at the annual November meeting of the Court of the University of Liverpool. The number of students and the expenditure of the University have doubled during the past ten years, and additional financial support is required and imperative if the work is not to be crippled. On an average the fees paid by the students covered only one-third of the cost. The budget for 1914 showed an expenditure of £80,000, whereas to-day it is £197,000, and there is a debt to the bank of £57,000. In 1914 the number of full-time students was about 900; to-day it was 1700, notwithstanding the fact that practically all the ex-Service students had departed. Vice-Chancellor Adami in his report called attention to some "live problems." At the present time, he said, there was not a sufficiency of posts in industry to employ even half the graduates in chemistry of the last two years, while many newly graduated women doctors throughout the country were seeking in vain for hospital appointments. The annual deficit in the working of the University is between £6000 and £7000.

DONATIONS AND BEQUESTS.—By the will of the late Mr. J. H. Morgan, F.R.C.S., the testator left among other bequests £1000 to Charing Cross Hospital; £250 to the Hospital for Sick Children, Great Ormond-street, W.C.; £200 to the British Medical Benevolent Fund; and £100 to Lord Mayor Treloar's Hospital at Alton.—Mr. Walter Jones, of Stourbridge, left £1000 each to the Corbett Hospital, Amblecote, Stourbridge, Dr. Barnardo's Homes, to certain trusts as to land recently presented to him at Stourbridge, and to the trustees of the British Healers' Association, Manchester.—Mr. David Islip, retired fish-curer, of Hull, left (subject to a life-interest) £1500 to Hull Royal Infirmary for the endowment of a bed in the Walker Ward in memory of his late wife; £500 each to the Hull Seamen's and General Orphan Asylum, Kingston-on-Hull, and to the Port of Hull Society's Sailors' Orphan Home; £250 to the Victoria Hospital for Sick Children, Kingston-on-Hull; £100 to the Hull and Sculcoates Dispensary; and £50 to the Hull Blind Institution. After other bequests, the ultimate residue of the property is left in equal shares to the Hull Royal Infirmary and the Hull Seamen's and General Orphan Asylum.—Coalville Urban Council have accepted a gift of £8000 from the Leicestershire Miners' Welfare Committee towards the provision of public baths in the town.—Miss Emily Sarah Soden Philpot, of Penge, left nearly £20,000 to charity. She bequeathed £500 each to the London, Guy's, Charing Cross, St. Bartholomew's, and Middlesex Hospitals; £500 each to the Metropolitan and City Police Orphanage; £250 each to the Hospital for Sick Children, Great Ormond-street, the South-Eastern Hospital for Children, Sydenham, the Beckenham and Norwood Cottage Hospitals, and the Convent for Sisters of Nazareth, Hammersmith; and £105 to Dr. Harding Philipps. After further legacies, she left all her other property equally between eight charitable institutions.—The Royal Northern Hospital has received from the executors of the late Miss Mary Neal, of Victoria-road, Southborough Common, Kent, a cheque for £4678 13*s.* 11*d.* This sum is to be divided equally between the Royal Northern Hospital, Holloway, and the Royal Chest Hospital, City-road.—Mr. Geoffrey Duveen, who has already munificently contributed to schemes for medical education in the University of London, has given £50,000 to University College for the construction of a new Ear, Nose, and Throat Hospital to perpetuate the memory of his late father. It will be remembered that last year Mr. Duveen gave £15,000 for the purpose of providing a suitable site adjoining University College Rockefeller buildings in Huntley-street, and £10,000 to the University of London for the establishment and endowment of a chair of Otology.

COLONIAL MEDICAL COUNCIL AT CAPE TOWN.—At the monthly meeting of the Colonial Medical Council, held at Cape Town on Tuesday, Nov. 4th, Dr. Darley Hartley presiding, the resolution passed at the last previous meeting recognising the medical degrees conferred by the University of Cape Town was unanimously confirmed. It was resolved to hold the examinations for midwifery certificates in the middle of December. It was stated that 48 candidates would sit, of whom 34 would be from the Cape. A communication was read from the executive of the South African Native College at Fort Hare asking to be favoured with a suitable curriculum for a proposed medical course for native students. The Chairman thought that, as the Council was only concerned with the registration of degrees and diplomas, it was outside of its province to give the desired advice. He thought that the reply should be given by the Universities, who were the qualifying bodies. It was resolved to reply that the question of a suitable curriculum could be more advantageously answered by the University to which the College is affiliated.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 8th.

WAR: at 5 P.M.

Paper:

Major R. W. G. Hingston, M.C., I.M.S.: Some Observations on the Application of the Royal Air Force Physical Efficiency Test in the 1924 Mount Everest Expedition.

Tuesday, Dec. 9th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.

Paper:

Prof. W. E. Dixon and Dr. F. H. A. Marshall: The Influence of the Ovary on Parturition.

OBSTETRICS AND GYNÆCOLOGY.

Members of this Section are particularly invited to be present and to join in the Discussion.

PSYCHIATRY: at 8.30 P.M.

Paper:

Dr. David Orr: The Anatomical and Physiological Mechanism of Emotion.

Wednesday, Dec. 10th.

MEDICINE
OTOLOGY
NEUROLOGY
LARYNGOLOGY } at 5.10 P.M. (to be adjourned, if necessary, to 8 P.M.).

Joint Discussion on
The Causes, Early Recognition, and Treatment of Non-Tubercular Meningitis.

Openers :
Dr. Hugh Thursfield (Section of Medicine).
Sir William Milligan (Section of Otology).
Dr. Worster-Drought and Dr. J. G. Greenfield (Section of Neurology).
Mr. W. M. Mollison (Section of Laryngology).

Thursday, Dec. 11th.

TROPICAL DISEASES AND PARASITOLOGY : at 5.30 P.M.

Paper :
Mr. J. Ramsbottom : Edible and Poisonous Toadstools (illustrated by coloured lantern slides).
A cinematograph film illustrating the Biology of Bilharzia, kindly lent by Dr. W. Watkins-Pitchford, will be shown by kind permission of the South African Institute for Medical Research, Johannesburg.

Exhibits :
Dr. H. B. Day : (*a*) Charts showing the Effect of Antimony Tartrate on Bilharzia Ova ; (*b*) Coloured drawing showing Effect of Antimony Tartrate on Bilharzic Urine.
Lieut.-Colonel H. Marrian Perry, R.A.M.C. : The Life-history of the Water Snail.

COMPARATIVE MEDICINE
THERAPEUTICS AND PHARMACOLOGY } Members of these Sections are cordially invited to attend this meeting.

NEUROLOGY : at 8 P.M.

Clinical Meeting at the West End Hospital for Nervous Diseases, Welbeck-street, W.

Notes of cases (as concise as possible and in a form suitable for publication) should be sent to the Junior Hon. Secretary (Dr. Feiling) not later than the first post on Monday, Dec. 8th.

Friday, Dec. 12th.

CLINICAL : at 5.30 P.M. (Cases at 5 P.M.)

Cases :
Mr. G. A. Rutherford : Two Cases of Purpura Hæmorrhagica, treated by Splenectomy, and one case awaiting treatment.
Sir Percy Bassett-Smith : Case of Pituitary Tumour.
Dr. Parsons-Smith : Two Cases of Cardiac Disease.
Other cases will be shown.

OPHTHALMOLOGY : at 5 P.M.

Clinical Meeting at the Royal Westminster Ophthalmic Hospital, King William-street, Strand.
A Discussion on the Cases shown will take place at 6 P.M.

ANÆSTHETICS : at 8.30 P.M.

Discussion on
Splanchnic Analgesia with Record of Cases.
Mr. O. Stanley Hillman will speak on Technique and the Surgical Aspect.
Mr. Raymond E. Apperly will deal with the Anæsthetic Aspect.

SURGERY :
Members of this Section are specially invited to attend this Discussion.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Dec. 8th.—8.30 P.M., Discussion on the Present Position of the Treatment of Diabetes by Insulin, to be introduced by Dr. George Graham, followed by Prof. MacLean and others.

HARVEIAN SOCIETY OF LONDON.

Thursday, Dec. 11th.—8.30 P.M. (at Paddington Town Hall, Harrow-road, Paddington Green). Dr. Charles Buttar : The Future Position of Consultants under the National Insurance Act. To be followed by a discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, W.

Thursday, Dec. 11th.—8.15 P.M., Discussion on Some Clinical and Scientific Aspects of Drug Addiction in the Tropics, opened by Prof. Dixon, F.R.S., of Cambridge, and Sir Havelock Charles, followed by Sir William Collins and Dr. Arthur Powell. Preceded by a Demonstration at 7.45 P.M.

WEST KENT MEDICO-CHIRURGICAL SOCIETY, Miller General Hospital, Greenwich, S.E.

Friday, Dec. 12th.—8.45 P.M., Mr. Bellingham G. Smith : The Importance of the Antenatal Clinic (Purvis Oration). There will be a conversazione and Mr. F. Davidson will give a demonstration of the Super-microscope with lantern slides.

BIOCHEMICAL SOCIETY (Biochemical Laboratory, Imperial College of Science and Technology, South Kensington).

Monday, Dec. 8th.—5 P.M., E. Watchorn : The Magnesium of Human Serum. M. E. Robinson and R. A. McCance : The Oxidation of Amino-acids by Fungus Tyrosinase. H. W. Buston, H. N. Mukherjee, and S. B. Schryver : The Isolation of a Hydrolysis Product of the Proteins, Hitherto Undescribed. H. Martin and S. B. Schryver: Some Transformations of Casein. Dorothy Griffiths and S. B. Schryver : The Separation of the Proteins of Egg-white in an Electrical Field.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Dec. 8th, to Saturday, Dec. 13th.—West Lecture Hall, Royal Society of Medicine. Lecture arranged by the Fellowship of Medicine and open to all members of the profession. At 5.30 P.M. Wed., Dec. 10th, Mr. James Berry : Cancer of the Thyroid.—Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E. Special Course in Medicine, Surgery, and Gynæcology. Lecture-Demonstrations in the Wards and Out-patient Departments. Infants Hospital, Vincent-square, S.W. Special Course in Diseases of Infants, consisting of clinical demonstrations, " Round Table " consultations, lectures, &c.—Hospital for Diseases of the Skin, Blackfriars-road. Course in Dermatology, consisting of instruction in Out-patient Department every afternoon at 2.30 P.M., and a Venereal Clinic Tuesdays and Fridays.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday.—12 noon, Mr. Simmonds : Applied Anatomy. 2 P.M., Mr. Addison : Surgical Wards. 2 P.M., Dr. Scott Pinchin : Medical Out-patients.

Tuesday.—11 A.M., Dr. McDougal : Electrical Dept. 12 noon, Dr. Burrell : Chest Cases. 2.30 P.M., Mr. Tyrrell Gray : Surgical Wards.

Wednesday.—12.15 P.M., Dr. Burnford : Medical Pathology. 2 P.M., Dr. Owen : Medical Out-patients. 2.30 P.M., Mr. Donald Armour : Surgical Wards.

Thursday.—10 A.M., Dr. Grainger Stewart : Neurological Dept. 11 A.M., Mr. Simson : Gynæcological Wards. 2 P.M., Mr. MacDonald : Genito-Urinary Dept.

Friday.—10.30 A.M., Dr. Pritchard : Medical Wards. 12 noon, Surgical Registrar : Surgical Pathology. 2 P.M., Mr. Vlasto : Throat, Nose, and Ear Dept.

Saturday.—9.30 A.M., Dr. Burnford : Bacterial Therapy 10 A.M., Dr. Saunders : Medical Diseases of Children. 10 A.M., Mr. Banks-Davis : Throat, Nose, and Ear Operations.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Tuesday, Dec. 9th.—4.30 P.M., Mr. C. H. Hayton : Quinsies, their Complications and Treatment.

Friday.—4.30 P.M., Mr. W. Ibbotson : Nasal Sinusitis, its Importance, Diagnosis, and Treatment.

Daily : Medical and Surgical Clinics, Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Dec. 11th.—4 P.M., Dr. Thursfield : Splenomegaly.

ROYAL DENTAL HOSPITAL OF LONDON POST-GRADUATE LECTURES.

Wednesday, Dec. 10th.—5 P.M., Mr. H. Stobie : Diagnosis and Surgical Principles Underlying Treatment of Cysts and Other Common Tumours of the Jaws.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Dec. 9th.—5 P.M., Dr. J. H. Sequeira : Tuberculosis Cutis.

Thursday.—5 P.M., Dr. S. E. Dore : Erythemato-squamous Eruptions.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, Dec. 9th.—4.15 P.M., Dr. F. Craven Moore : Some Aspects of *Bacillus coli* Infection.

Friday.—Dr. D. E. Core : Early Mental Disease, its Differentiation and Prognosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)

Tuesday, Dec. 9th.—(At the Royal Infirmary.) Mr. R. St. L. Brockman : The Complications of Gall-stones.

Friday.—(At the Royal Hospital.) Mr. Garrick Wilson : Acute Osteomyelitis.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.

Wednesday, Dec. 10th.—3.15 P.M. (at the Town Club, Swindon), Dr. A. T. Todd : Hepatic Insufficiency, Diagnosis, &c.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

Tuesday, Dec. 9th.—4 P.M., Dr. Maclennan : Clinical Pathology of the Urine.

INSTITUTE OF HYGIENE, Devonshire-street, W.

WEDNESDAY, Dec. 10th.—3.30 P.M., Dr. A. Middleton Hewat: Infant Foods and Feeding.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-sq., W.C.
(Course of Lectures on the Health of the Commonwealth.)

WEDNESDAY, Dec. 10th.—4 P.M., Sir Robert Jones: The Problem of the Cripple Child.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It.
(At the Medical Society of London, 11, Chandos-street, W.)

MONDAY, Dec. 8th.—6 P.M., Dr. Tredgold: Mental Deficiency.

Appointments.

HODSON, V. S., M.B. Oxf., M.R.C.P. Lond., has been appointed Physician to Out-patients at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.

MCILROY, A. LOUISE, M.D., D.Sc. Glasg., Examiner in Obstetrics in the University of London.

Manchester Royal Infirmary: SMITH, G. S., M.B., Ch.B. Manch., House Surgeon; ROBERTS, W. M., M.B., Ch.B. Manch., House Physician; HORTON, W. L., M.B., Ch.B., Clinical Assistant.

St. Mary's Hospitals, Manchester: ROBINSON, G. T., M.B., Ch.B. Manch., COWAN, J. MUIR, M.B., Ch.B. Manch,, and WILDE, J. MARGARET, M.B., Ch.B. Manch., House Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, Clapham-road, S.W.—Res. M.O. at rate of £100.

Birkenhead Borough Hospital.—Sen. H.S. £200.

Birmingham, Queen's Hospital.—Pathologist. £100.

Bristol Royal Infirmary.—Hon. Reg. to Ear, Nose, and Throat Dept.

Buxton, Derbyshire Devonshire Hospital.—Asst. H.P. at rate of £150.

Cambridge, Addenbrooke's Hospital.—Cas. O. and Res. Anæsthetist at rate of £130.

Charing Cross Hospital, W.C.—Res. M.O. £400.

Chelmsford Administrative County of Essex.—Two Asst. County M.O.H.'s. Each £600.

Derbyshire Royal Infirmary.—Hon. Asst. S. Also Ophthal. H.S. £200.

Doncaster Royal Infirmary.—H.P. £150.

Douglas, Isle of Man, Noble's Hospital.—Res. H.S. £175.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. at rate of £125.

East Sussex County Mental Hospital, Hellingly, Sussex.—Pathologist. £400.

Exminster, Devon Mental Hospital.—Jun. A.M.O. £300.

Greenwich, Dreadnought Hospital.—H.P. and H.S. at rate of £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. S.

Infants Hospital, Vincent-square, Westminster.—Jun. Anæsthetist.

Ipswich, East Suffolk and Ipswich Hospital.—H.P. £100.

Johannesburg, South African Inst. for Med. Research.—Plague Bacteriologist. £1500.

Leeds Maternity Hospital.—University Tutor in Obstetrics, &c. £300.

London Hospital, E.—First Asst. to Medical Firm. £400.

London Lock Hospital, 91, Dean-street, W.—Clin. Asstships.

London Lock Hospital, 283, Harrow-road, W.—Second H.S. £150.

Malayan Medical Service.—Medical and Health Officers. See advt. for salaries.

Manchester Royal Infirmary.—R.M.O. £200.

Middlesex Hospital, W.—Sen. Asst. Radiologist. £500. Two Asst. Radiologists. Each £160. Radium Officer. £300, and Dental H.S. £50.

National Dental Hospital, Great Portland-street, W.—Hon. Anæsthetist.

Oldham Royal Infirmary.—H.S.'s. Each £200.

Queen Mary's Hospital, Stratford, E.—Res. M.O., H.P., two H.S.'s Obstet. H.S., and H.P. and Cas. O. Hon. Asst. P. Also Clin. Asst. to Throat, Nose, and Ear Dept.

Rainhill, Lancs County Mental Hospital.—Temp. Asst. M.O. 7 guineas weekly.

Reading, Royal Berkshire Hospital.—Third H.S., H.P., and first H.S. All at rate of £150.

Royal Army Medical Corps.—Commissions.

Royal College of Physicians, Pall Mall East.—Milroy Lecturer.

Royal Masonic Institution for Girls, Clapham Junction.—M.O. £350.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £150.

St. Mary's Hospital, W.—Med. Reg. £200. Med. Supt. £400.

St. Peter's Hospital for Stone, &c., Covent Garden, W.C.—Clin. Assts.

Salford Royal Hospital.—Res. M.O. and H.P. at rate of £175 and £125 respectively.

Sheffield Royal Infirmary.—H.S., Asst. Cas. O. and Asst. Ophth. H.S. Each £60.

Southampton, Royal South Hants and Southampton Hospital.—Sen. H.S. £200.

Southwark Hospital, East Dulwich Grove, S.E.—Two Asst. M.O.'s. Each £300.

Staffordshire General Infirmary, Stafford.—H.P. at rate of £150.

Swansea General and Eye Hospital.—H.S. £175.

West Bromwich and District Hospital.—Res. Asst. H.S. £180.

Western Dispensary, 38, Rochester-row, Westminster, S.W.—Resident. £100.

West Ham County Borough.—Tuberculosis O. £900.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S. and Res. Cas. O. Each at rate of £100.

Winchester, Hampshire County Council.—Asst. M.O.H. £600.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Chester-le-Street, Durham; and Camborne, Cornwall.

Births, Marriages, and Deaths.

BIRTHS.

CUNNINGHAM.—On Nov. 24th, at Chesham, Bucks, the wife of F. H. Lester Cunningham, M.C., M.B., B.S., of a daughter.

GALBRAITH.—On Oct. 28th, at St. Stephens, Launceston, the wife of Douglas H. A. Galbraith, M.C., M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

VELLUOT—LAWLOR.—On Nov. 12th, at Hong-Kong Cathedral, George Albert Velluot, M.B. Edin., M.D. Paris, Croix de Guerre, of Shanghai, to Alice Elizabeth, B.A., M.B., Med. Schol. T.C. Dub., eldest daughter of Mr. H. C. Lawlor, M.A., M.R.I.A., Belfast.

WOOD—CAMPBELL.—On Nov. 29th, at The Charterhouse Chapel, Guy Wood, M.B., M.R.C.P., of The Charterhouse, London, to Margaret, daughter of Mr. and Mrs. Archibald Campbell, of Wolseley-road, N.

DEATHS.

BENSON.—On Nov. 25th, suddenly, at his residence, The Elms, Steeple Claydon, Bucks, Philip Lambert Benson, M.A., M.D., D.P.H., J.P., aged 73.

REYNOLDS.—On Nov. 25th, at Twyford Abbey, Willesden, Ernest James Reynolds, M.R.C.S., &c.

ROBSON.—On Nov. 28th, at "Stow Thorna," Guildford, John Robson, M.D., F.R.C.S.E., in his 82nd year.

STEWART.—On Nov. 24th, at Starborough House, Bilton-road, Rugby, Percy Peter James Stewart, F.R.C.S. Edin., O.B.E.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Notes, Comments, and Abstracts.

THE VALUE OF THE REFLEXES IN DIAGNOSIS.

Abstract of a Paper read before the West Kent Medico-Chirurgical Society on Nov. 14th, 1924,

BY J. S. RISIEN RUSSELL, M.D., F.R.C.P.,
PHYSICIAN TO THE NATIONAL HOSPITAL FOR NERVOUS DISEASES, QUEEN-SQUARE.

WHILE having no hesitation in selecting the reflexes, to the exclusion of every other method of clinical investigation, as the best means of arriving at a diagnosis of an affection of the nervous system, I am unable, with the same alacrity, to say on which of them I should rely most to the exclusion of the others, for the reason that they play such different rôles in the clinical picture of different disorders of the nervous system. For instance, what more important evidence of an organic affection than the pupil that fails to act reflexly to light and yet reacts on accommodation, but how limited is its application as compared with the large number of cases in which alteration of the plantar reflex from the normal flexor type to the extensor (Babinski's sign) serves us in diagnosis! If, however, we recognise that in the diagnosis of certain affections one reflex has a greater value than another, and that there must of necessity be exceptions in which the plantar reflex cannot compete with certain others in importance, it must be conceded that it affords the most valuable aid to diagnosis because of its applicability to so wide a range of cases.

Symptoms Real or Feigned.

I have only encountered one malingerer—and he well versed in every possible deception—who made use of the abnormal type of plantar reflex as part of the cleverly constructed clinical picture he presented, other parts of which, that concern our subject, being a fixed pupil that did not respond to light and absence of the conjunctival reflex on the same side. In all other cases of the kind in which assistance could be expected from it in attempts to defeat the malingerer the plantar reflex has never failed me.

A fit is, of course, one of the devices of the malingerer, and it also not infrequently happens that it becomes necessary to decide whether a fit is hysterical or truly epileptic. No real difficulty may present itself if one has the opportunity of observing the individual in the actual attack, but how seldom this happens. As a rule it is necessary for us to arrive at our conclusions from hearsay, and from an examination of the person after the attack is over. The state of the pupils and the conjunctival reflex, that are so important if we are fortunate enough to find the person actually in an attack, are no longer of any assistance, as the normal reflex response to light and to tactile stimulation may then be obtained, and yet the attack may have been one of true epilepsy. It is to other reflexes that we must turn our attention if we are to obtain any information from this source in attempting to arrive at a correct conclusion. The state of the knee-jerks, and the presence or absence of ankle-clonus should engage our attention, although all such manifestations are so fleeting that we may gain no valuable information from them, and yet do so from the state of the plantar reflex. So evanescent are all these phenomena, however, that I can recall only one instance in which I was able to demonstrate to a class all the phenomena that allowed of a positive diagnosis of epilepsy as opposed to hysteria or malingering. In this case the patient was brought in from the street in a fit, and reached the out-patient room in time for me to demonstrate that the knee-jerks were absent, that on their return they quickly became exaggerated and associated with ankle-clonus, while of the other abnormal phenomena present the extensor type of plantar reflex (Babinski's sign) was the last reliable sign to disappear and be replaced by the normal flexor response. I say reliable in that mere exaggerated knee-jerks which still obtained without ankle-clonus, or the abnormal type of plantar reflex, proved nothing. So transitory are these manifestations that no time should be lost in searching for evidence in these directions when confronted with a case in which the nature of a fit has to be decided.

Disease Functional or Organic.

Of the numberless cases in which the plantar reflex has proved invaluable in deciding between functional and organic nervous affections, two women, both of whom are dead, must serve in illustration. Both of these patients were submitted to me as cases of neurasthenia, and in neither of them could I find evidence to the contrary, except that they both revealed the abnormal type of plantar reflex on one side. One of these patients subsequently proved to be suffering from disseminated sclerosis, while in the other the disease which was commencing and which rapidly resulted in the death of the patient was what is known as subacute combined degeneration of the spinal cord. Both of these cases serve to remind us that not only does this abnormal phenomenon prove the existence of organic disease of the nervous system, but that it goes further and supplies us with the definite information that the central as opposed to the peripheral nervous system is at fault, and that, whether alone or in conjunction with other parts, the pyramidal system is involved in the morbid process.

Location Central or Peripheral.

The following case supplies an example of how the plantar reflex serves to determine the existence of central as opposed to peripheral affection, and of how it allows of the exclusion of one central disease of the nervous system as contrasted with another. A woman whose medical man sent her with a history of alcoholic excess and loss of power in her lower limbs, presented an appearance which confirmed the history of alcoholism. Her knee-jerks were absent, so that multiple peripheral neuritis, already suggested as probable by the history, was made all the more likely. Tabes has, however, to be borne in mind in any case in which the knee-jerks are absent, in spite of the person being alcoholic. The fact that the pupils reacted normally to light supported the probability of peripheral neuritis as opposed to tabes, a view strengthened by some tenderness elicited on squeezing the patient's calves. Certain as this diagnosis now appeared, however, it had to be considerably modified when it was found that the plantar reflex was of the extensor type, indicating that, however great a part alcoholic neuritis played in the production of the clinical picture, there must be central disease to account for the behaviour of the plantar reflex. A more detailed examination of the patient, including examination of the blood, established the diagnosis of subacute combined degeneration of the cord, which was confirmed not only by the subsequent clinical course of the patient's illness ending in death, but by the post-mortem and the microscopical examination of the spinal cord.

There is one aspect of the plantar reflex that calls for our attention, but which is overshadowed by Babinski's sign, and whose importance is, therefore, liable to be overlooked. I refer to its absence in functional cases in so far as response in the toes is concerned. This behaviour of the plantar reflex does not receive the attention it deserves. I would especially direct your attention to the possibility of its proving of assistance in some cases of accidents in which there is no evidence of structural damage to the nervous system, but only such functional manifestations as can be ascribed to shock. The case of a girl who received a blow on the back in an accident, and who, as a result, suffered from functional paraplegia for a time, will serve in illustration. She subsequently became able to walk, but continued to complain of pain in her back which incapacitated her and made walking difficult. Contrary to the oft-quoted statement that these patients recover as soon as they succeed in their legal action and receive monetary compensation, this girl continued an invalid, incapacitated and unable to earn her livelihood for a long time after, in accordance with what I expected would prove the case, as with exaggerated knee-jerks her plantar reflexes were absent. They were not of the abnormal extensor type which would have been evidence of structural damage to the spinal cord, nor were there concomitant signs to support a lesion of the nerve-roots or cauda equina and account for the absence of response on stroking the soles of the feet, the behaviour of the reflexes being clearly to be ascribed to functional disturbance. There could be no doubt that, no matter how much the girl might be consciously or unconsciously exaggerating her symptoms, a genuine substratum was present which justified the opinion formed and the prognosis given.

Result or Not of Accident.

It is necessary to consider the reflexes in their relation to accidents from another standpoint, however, the importance of which is well illustrated by two cases, in both of which tabes happened to be the organic disease present in the individuals who had met with the accidents. The first of the cases presented little difficulty, as the nature of the accident—a fall on the back when alighting from a tram-car that commenced to move forward before he was properly clear of it—scarcely provided material to account for absence of the knee-jerks in a man in whom there was no actual paralysis; while, even if this were disputed, it could scarcely be argued with any show of reason that pupils which acted on accommodation but failed to respond to light revealed a defect that could be ascribed to the accident in question. The pupil reflex was equally to be relied on in the evidence it supplied in the other case to which I wish to refer, but in which, otherwise, the case was not so easily disposed of. It so happened that, in addition to a blow on the back, both lower limbs received injuries, and while those to the one limb could not possibly be held responsible for any alteration of the reflexes, it was otherwise in the other limb where some injury to the sciatic nerve might well have resulted, such as could account for loss of the ankle-jerk which was found present. But the ankle-jerk of the other limb was also absent, although the injuries to it could not possibly be regarded as affecting the sciatic nerve. Moreover, the plantar reflex on both sides remained unaffected, as would have been impossible had there been damage to the sciatic nerve sufficient in degree to abolish the ankle-jerk. Doubts were dispelled by the behaviour of the pupils, one of which failed to react to light, while the reaction was very poor in the other. I may perhaps be excused for reminding you that in a case of tabes the ankle-jerks may be absent when the knee-jerks are still present or vice versa, for in this case, contrary to what you might have expected, the knee-jerks were both present, indeed, unduly active, a state of things to be ascribed to the more general effects of the shock to the nervous system occasioned by the accident.

Relative Value of Certain Reflexes.

While it has been impossible to avoid giving first consideration to the plantar reflex, this must not be taken to derogate from the importance of the evidence to be derived from investigation of the knee-jerks. On approaching this subject, however, we are at once confronted with the question as to whether or not the knee-jerk is ever truly absent in a normal person, or whether, when not elicited, this is to be regarded as evidence of disease. All that need be said is that if it be true that there are people, otherwise normal, whose knee-jerks are truly absent, such cases must be sufficiently rare that they ought not to be allowed to invalidate the rule that absence of knee-jerks is to be taken as indicating in all probability the existence of organic disease. Far be it from me to assert that the knee-jerks are never absent in people otherwise normal, but one is, I think, justified in refusing to accept any such case without the opportunity of a personal examination, for the reason that many a patient comes to me without knee-jerks and has them restored to him before he leaves. This leads me to remind you that there are many fallacies open in attempts to elicit the knee-jerks, and that there are right and wrong ways of trying to bring reinforcement to the aid of the observer who is attempting to elicit the knee-jerk with its assistance. This being the case, no case should be diagnosed as one of organic disease on the evidence supplied by the knee-jerks alone, but with this phenomenon as possible evidence of organic disease, some other unequivocal physical sign in confirmation should be sought, and if discovered then, and only then, should so grave a sentence be passed on the individual under suspicion.

Important as the ankle-jerk may prove in the diagnosis of tabes, it plays but a secondary part to that of the knee-jerk, which is so usually absent when the patient comes under observation as to make it the exception that we find it necessary to fall back on the ankle-jerk for assistance in attempting to arrive at a diagnosis owing to the knee-jerk being still present. Although exceptional, such cases do, however, occur in which, without the assistance of the ankle-jerk, a positive diagnosis might not be possible, indeed, even an erroneous opinion might be formed.

In thus according priority to the knee-jerks, it must not be supposed that the ankle-jerk may not in its turn claim preferment, for it may even prove to be of greater diagnostic value than the knee-jerk. Indeed, so much may it dominate the situation that it is not a question as to whether it is more often of service than the knee-jerk in this particular class of case, but rather that it is always of service, while the knee-jerk can only call for attention from a negative standpoint. In any case in which there is affection of the sciatic nerve, or of the nerve strands which enter into its formation, the ankle-jerk is of supreme importance in diagnosis. One of the cases last referred to makes it evident that the behaviour of the ankle-jerk is all important in an affection of the sciatic nerve. In the ordinary routine of practice "sciatica" is naturally a common affection, but all cases of pain referred to the distribution of the sciatic nerve are not necessarily "sciatica." The state of the ankle-jerk supplies evidence as to whether the condition is purely functional or whether it has an organic basis, for in the former the ankle-jerk remains active, or even too active, while in the latter, provided the morbid process be sufficiently advanced, it is abolished.

COLONIAL HEALTH REPORTS.

HONG-KONG.

THE civil population of this colony, says Mr. A. G. M. Fletcher, Colonial Secretary, in his report for 1922, was estimated at the middle of the year under review at 662,200, distributed as follows:—Non-Chinese civil community, 15,200. Chinese population: City of Victoria (including Peak), 340,000; villages of Hong-Kong, 25,700; Kowloon and New Koolon, 133,000; new territories, 84,000; population afloat, 64,300. Total Chinese population, 647,000. Total civil population, 662,200.

The birth-rate for the year was 6·25 per 1000 among the Chinese community and 22·84 per 1000 among the non-Chinese community, as compared with 5·68 and 25·88 for 1921; but it is stated in a footnote that "this figure is wholly misleading, as it is impossible to register more than a portion of the births." The death-rate for the year was 25·88 per 1000 among the Chinese community, and 20·46 among the non-Chinese civil community, as compared with 20·29 and 18·08 for 1921. The number of deaths from malaria were 454, from plague 1071, and from small-pox 189. There were 4863 deaths from respiratory diseases (other than pulmonary tuberculosis). Pulmonary tuberculosis claimed 1385 Chinese and 25 non-Chinese victims, whilst other forms of tuberculosis represent an additional 686 deaths, making a total of 2096, or 14·8 of the total deaths among the community. Beri-beri was responsible for 829 deaths, as compared with 526 during 1921. During the past few years circulars have been distributed to all large employers of coolie labour calling their attention to the fact that beri-beri is produced by the consumption of white rice as the staple article of diet without a sufficiency of other foods, and advising that beans should be supplied with the rice when fresh meat or fresh fish cannot be afforded.

Hospitals.—Government hospitals consist of the civil hospital (to which is attached an isolated maternity hospital), the Victoria Hospital for Women and Children, and the Kennedy Town Infectious Diseases Hospital. The civil hospital contains 170 beds in 21 wards; 4447 in-patients and 25,892 out-patients were treated during the year. The maternity hospital contains nine beds for Europeans, plus three extra beds, and eight for Asiatics. The Victoria Hospital at the Peak contains 41 beds, and during 1922 178 patients were under treatment there. At Kennedy Town Hospital, which contains 26 beds, ten cases were treated in 1922, all being infectious. The lunatic asylum is under the direction of the superintendent of the civil hospital. European and Chinese patients are separated, the European portion containing 14 beds in separate wards and the Chinese portion 16 beds; 235 patients of all races were treated during the year, and there was one death. The Tung-Wa Hospital, opened in 1872, is mainly supported by the voluntary subscriptions of Chinese, but receives an annual grant of $8000 from the Government. Only Chinese are treated in this institution. Chinese as well as European methods of treatment are employed in accordance with the wishes expressed by the patients or their friends. Over half the number are now treated by Western methods. The hospital is under the supervision of a visiting physician, who is a member of the medical department, whilst two Chinese house surgeons, trained in Western medicine, are members of the hospital staff. There are 450 beds in the buildings, and 8336 patients were accommodated during 1922. The Tung-Wa also maintains a branch hospital for small-pox cases (Chinese only). It contains 60 beds, and during the year 46 cases were treated. The Alice Memorial and affiliated hospitals are managed and controlled by the missionaries resident in Hong-Kong, agents of the London Missionary Society, and consist of the Alice Memorial Hospital opened in 1887, the Nethersole Hospital (1893), the Alice Memorial Maternity Hospital (1904), and the Ho Miu Ling Hospital (1906). The number of in-patients in 1922 was 1667. The number of labours in maternity hospital was 457. To avoid the complete seclusion from friends and relatives, which removal of Chinese plague patients to the Kennedy Town Infectious Diseases Hospital entailed, four district plague hospitals are now maintained by the Chinese in various parts of the colony. The Kwong Wa Hospital for Chinese in the Kowloon Peninsula was opened in 1911. The existing buildings contain 244 beds, and 5142 patients were accommodated during 1922. The Chinese public dispensaries are institutions maintained in order to provide the Chinese with the services of doctors whose certificates will be accepted by the registrar of deaths, and with the services of interpreters who can assist the inmates of houses where a case of infectious disease has occurred. Coolies are engaged and ambulances and dead vans provided in order to remove cases of infectious disease to the infectious diseases hospital and dead bodies to the mortuary. The dispensaries receive sick infants and send them to one or other of the convents and arrange for the burial of dead infants. Free advice and medicine are given and patients are attended at their houses. There are eight of these dispensaries in existence. The Government makes an annual grant of $7000 and the rest of the cost is defrayed by voluntary subscription.

The Medical School.—The University of Hong-Kong, ncorporated under the local University Ordinance, 1911, s a residential university for students of both sexes. It ncludes the three faculties of Medicine, Engineering, and Arts. The Faculty of Medicine provides a five-year course of study in the usual pre-medical and medical sciences, supplemented by clinical work in the Government Civil and Tung Wa hospitals leading to the degree of M.B., B.S. The degrees of M.D. and M.S. may be obtained for postgraduate work. The degrees above mentioned are recognised by the General Medical Council for registration in Great Britain. The site of the University was given gratuitously by the Colonial Government. In the main buildings are housed the chemical, physical, and biological laboratories. Special medical buildings include schools of anatomy, physiology, pathological and tropical medicine, erected at the cost of Chinese gentlemen resident in the colony. During 1922 a benefaction of $500,000 was received from the Rockefeller Foundation for the foundation of full-time chairs in medicine and surgery. The complete scheme ncludes a grant of a further sum of $250,000 for a full-time chair of obstetrics and gynæcology, and provides for the creation of complete medical units for the teaching of the three subjects in the Government Civil Hospital. The University is to make provision out of its own funds for assistants to the professors of anatomy, physiology, and pathology, and it is desired to erect a hostel for medical students in proximity to the hospital. Eight scholarships of $200 each were founded by the China Medical Board for medical students who shall have carried out their premedical studies at the Canton Christian College, the Univerity undertaking to remit fees to the extent of $100 a year.

ST. VINCENT.

The report for 1922, prepared by Mr. Robert Walter, C.M.G., administrator, states that the estimated population of the colony on Dec. 31st, 1923, was 46,744. The birthrate for the year was 41·99 per 1000 and the death-rate 22·21. Illegitimate births numbered 1455, or 74·1 per cent. of the total number of all births. The general health of he colony throughout the year was good. A mild type of nfluenza was prevalent. The colony escaped altogether he visitation of alastrim, which has caused so much distress n some of the neighbouring islands. Infantile diarrhœa was more prevalent than in 1922, and the number of deaths rom this cause, 138, shows an increase of 26 as compared with the previous year. The case mortality was 8 per cent., as against 13 per cent. in 1922. It is noteworthy that children's diarrhœa is worse during the rainy months, while he case mortality rate is greater during the dry months. The campaign against yaws by intramuscular injection of novarsenobillon continued to be pressed vigorously with very satisfactory results. During the year 3492 cases, ome 7 per cent. of the population, were treated, and of hese 79 per cent. were returned as cured. The following hospital accommodation is provided: Colonial Hospital, Kingstown, 86 beds (including 4 beds for private paying patients); District Casualty Hospital, Georgetown, 4 beds; and District Casualty Hospital, Chateaubelair, 4 beds. St. Vincent is one of the healthiest of all the West Indian slands. The climate may be divided into two seasons, wet and dry; the dry season from January to May, with an average rainfall of 4·04 inches per month, and the wet eason from June to December, with an average of 8·22 inches per month. The coolest months are December to April. The temperature throughout 1923 varied from 76·3° F. to 0·4° F.

TURKS AND CAICOS ISLANDS.

The area of these islands is estimated to be about 166 square miles, but as no thorough survey has ever been made this igure may be below the mark. The Turks Islands consist of two inhabited islands, Grand Turk and Salt Cay, four uninhabited islands or cays, and a large number of islets and rocks. These islands derived their name from a species of cactus found there by the early settlers, the scarlet head of which was said to resemble a Turkish fez. The Caicos slands, which lie to the west of the channel, surround the Caicos Bank, a triangular shoal 58 miles long on its northern ide and 56 miles long on its eastern and western sides espectively. The entire group, known as the Turks and Caicos Islands, extend for a distance of 75 miles from east o west and 50 miles from north to south, and constitutes part of the long chain of low islands and banks extending rom off the Florida coast to the Navidad Bank, lying north of the Dominican Republic. The Turks and Caicos Islands are generally considered to be healthy, but during the year 922 (according to the report of Mr. H. E. Phillips, the Commissioner), owing to various causes, the public health was not as good as usual. The infant mortality was higher than in former years, owing, no doubt, to the drought which necessitated the use of well-water for drinking purposes. The Government medical officer at Grand Turk reported that "this change of the drinking-water caused numerous cases of bowel trouble in both old and young," and expressed his opinion that "this was responsible for many of the deaths that occurred among the young children and infants." Alastrim, which had been imported from the Dominican Republic during the previous year, still continued to make its appearance during the first few months of 1922. Malaria, which is nearly always present, broke out in a severe form during the latter months of the year. Tuberculosis, which seemed to be on the decrease during previous years, increased to a notable extent during 1922, owing, in the opinion of the Government medical officer, to the lack of proper food during the drought and also to the lack of ventilation in the houses. The hospital accommodation provided consists of eight beds at the Manning Hospital at Grand Turk and four beds at the Cottage Hospital at Cockburn Harbour. As regards the Manning Hospital, during the year nine cases were admitted to the surgical ward for operation, and 16 to the medical ward for treatment. The tent which had been erected in the hospital grounds to receive alastrim cases during the previous year was kept in readiness during the first part of 1922 to receive any new cases which might be imported. The medical officer reported that the isolation of these cases of alastrim, and other precautionary measures, such as vaccination and the inspection of all ships arriving from abroad, were no doubt instrumental in preventing an epidemic of this loathsome disease from invading these islands. The estimated population of the Turks and Caicos Islands at the close of 1922 was only 5711. The white population, numbering about 200, is composed almost entirely of the descendants of Bermudians. During the year 211 births were registered, giving a birth-rate of 37·5 per 1000. During the same period 179 deaths were recorded, the death-rate being 32 per 1000. The readings taken at the Weather Bureau Station at Grand Turk, at a height of 11·3 feet above the sea-level, were as follows: Rainfall, 16·30 inches; maximum temperature, 87° F.; minimum, 60°.

NIGERIA.

The area of Nigeria, including the mandated area of the Cameroons, is approximately 367,928 square miles, and it is thus larger than any British dependency other than Tanganyika, India, and the self-governing dominions. It is more than three times the size of the United Kingdom. The population, according to the 1921 census, is 18,631,442. There are about 4000 Europeans temporarily resident, chiefly in the employ of the Government and of mercantile and mining companies. The country is not suitable for European settlement. Of the native inhabitants the greater number are of pure negro race, but in the north there are Berber and negroid tribes. In the more backward communities cannibalism still occurs, and is probably more common than is realised, and cases of slave dealing are still to be found amongst the tribes to the east of the Niger. In the report for 1923, prepared by Mr. H. O. S. Wright, senior assistant secretary, it is stated that the colony and protectorate have throughout the year enjoyed comparative freedom on the whole from epidemic diseases and from the attendant mortality that follows an epidemic through a country. The outbreak of cerebro-spinal meningitis that prevailed in the Kontagaro Province during 1922 recurred in the month of February, but the infection expended itself by March and April. The country has been particularly free from any severe outbreaks of small-pox, though during the first six months of the year a small recrudescence of the disease took place in its old haunts, comprising the Okigwi and Enugo districts. In the northern provinces it made its presence felt along the Benue River in the Mora and Yola provinces. In the Cameroons a moderate outbreak of the disease occurred in the districts of Buea, Mamfe, and Bamenda. It is of some interest to record that a few cases of relapse fever occurred in Lagos mainly during the month of September. "Health Week," initiated in Lagos in 1922, was held for the second time in December, 1923. Self-help being the principle, much of the organisation was left to the people themselves who had gained experience of its working previously. It is to be hoped that as the years go by and the people become better educated, more and more will interest themselves in assisting to promote the health of the community. A visit to the Iqu waterworks was a real success, for over 1000 persons availed themselves of the opportunity of seeing how the town water was purified.

The seasons in Nigeria depend rather on the rainfall than on temperature. They are, as a rule, well defined. The dry season, with its attendant "Harmattan," commences in the north of the country in October and ends in April. It is of shorter duration in the south, and at Lagos generally lasts from November to March with only intermittent

"Harmattan." This is a dry north-easterly wind which brings with it a thick haze composed of minute particles of dust and shell. During its prevalence the nights and early mornings are cold, but the days are very hot, and it is during this period that the maximum diurnal variations occur. Generally speaking, the lowest mean temperature is in the months of July and August, and the lowest minimum recorded temperature at the beginning and end of the year. The highest mean and maximum temperatures are, as a rule, recorded in March and April. At the end of the dry season numerous tornadoes herald the approach of the rainy season which lasts until October, with a slight break in August. In the south the prevailing wind during this season is from the south-west, and with it comes the rain, which is remarkably heavy along the coast and decreases rapidly as it travels inland. The average annual rainfall at Bonny on the coast is 163 inches (in 1921 245 inches were registered). At Lokoja, situated at the confluence of the Niger and Benue, it is 48 inches; and at Sokoto, in the north-west of Nigeria, it is only 25 inches. The average rainfall at Lagos is 72 inches. In the northern parts of Nigeria there is literally no rain whatever for the greater part of the dry season: for 12 years no rain has fallen at Sokoto during the four months November to February.

LEEWARD ISLANDS.

These islands form the most northerly group of the "Lesser Antilles" in the West Indies, and lie between 18° 27′ and 15° 10′. The colony is now a federation, comprising the five presidencies—formerly separate colonies—of Antigua; St. Christopher (usually called St. Kitts), with which presidency is included Nevis; Dominica; Montserrat; and the Virgin Islands. The report for the year 1922–23, recently issued, states that the total population of the colony, according to the census of 1921, was 122,242, showing a decrease of 4951 when compared with the census for 1911. The birth- and death-rates are given as follows:—

	Population.	Birth-rate per 1000	Death-rate per 1000.
Antigua	29,512	37·24	33·51
St. Kitts	21,650	39·8	33·8
Nevis	11,854	37·5	20·4
Anguilla	4,362	33·2	18·3
Dominica	38,108	39·83	31·11
Montserrat	11,957	34·5	21·9

The general health of the colony during the year was satisfactory, and although epidemics of alastrim existed in Dominica from July, 1922, to August, 1923, the disease was of a comparatively mild type, only six deaths occurring. Thorough vaccination took place throughout the colony, and it is considered improbable that a similar invasion will occur for a long time to come. There is a central lunatic asylum at Skerrets, Antigua, and there are two leper asylums, one at Rat Island, Antigua, and the other at Fort Charles, St. Kitts. The mean rainfall in Dominica was: at 14 Leeward stations, 76·31 inches; at 3 Windward stations, 115·49 inches; at 4 inland stations, 211·51 inches; and at 5 Lasoye stations, 97·24 inches. In Antigua the average rainfall, taken at 70 stations for 49 years, is 44·18 inches, and the rainfall for 1922 was 35·14 inches, or 9·04 inches below the average. In St. Kitts the rainfall at La Guerite station was, for the year 1922, 39·7 inches.

ST. HELENA.

His Excellency Colonel Robert Francis Peel, C.M.G., the Governor, in a report on this colony for 1923, estimates the population at 3654. Births during the year numbered 114 (not including two still-born) and deaths 28, giving a birth-rate of 31·19 per 1000 and death-rate of 7·66 per 1000. The general health of the community continued to be satisfactory. A mild but widespread epidemic of influenza prevailed in the months of January and February, repeating the experience of the previous year. During these two months the trade wind frequently fails, and this occurrence certainly favours the spread of air-borne infection. There were 157 admissions to hospital during the year and 7 deaths occurred, equal to a death-rate of 4·5 per cent. New and convenient quarters were provided for the nursing staff at St. John's Villa, which has been taken over by the Colonial Government from the Admiralty, and which, after complete renovation, was occupied by the nurses in April. The mean temperature for the year was 62·0° F., the absolute maximum being 80·1° on July 25th, and the absolute minimum 50° on July 8th. The total rainfall recorded at Hutt's Gate was 45·74 inches, at Plantation 45 inches, and in Jamestown 10·14 inches.

QUEEN ALEXANDRA.

To the Editor of THE LANCET.

SIR,—On Dec. 1st Queen Alexandra attained her eightieth birthday (having been born at Copenhagen on Dec. 1st, 1844). She was married to King Edward VII. (then, of course, Prince of Wales) on March 10th, 1863, and in THE LANCET of March 14th of that year you had a leading article commenting upon the happy event, in which you stated that "the universal blessings which hallowed our welcome of a fair young stranger to her future home implied more than the exuberant greeting of an enthusiastic people. Past happiness and future hope found therein a simultaneous expression," and also "we do from this marriage anticipate special results." Sixty-one years have elapsed, and many special results from that marriage have been realised, as will be admitted on all hands with grateful recollection, not the least being the King Edward's Hospital Fund and the Alexandra Fund, established in 1912, with its exceedingly popular Rose Day, by which over a million pounds have been raised. Those who have seen the various books on the lives of King Edward and Queen Alexandra will have a good idea of their beneficent activities.

I am, Sir, yours faithfully,

Nov. 27th, 1924. W.

*** In regard to the Alexandra Fund, Miss C. May Beeman, C.B.E., the organiser, informs us that in 1925 the Rose Day will be held on the second and not the third Wednesday in June, that is, on the 10th, in order not to clash with Ascot.—ED. L.

OBSTINATE CONSTIPATION.

To the Editor of THE LANCET.

SIR,—In regard to the request by "Clinical" in THE LANCET of Oct. 11th for suggestions as to treatment for a young patient suffering from chronic and unrelieved constipation, if this condition is induced by hypo-thyroidism (a likely cause), I suggest a course of thyroid gland treatment, ½ gr. doses, which may be combined with 1 gr. pituitary whole gland, t.d.s., a.c. Should there be any duodenal insufficiency, eukinase, in granular form, after meals, is also indicated. Frequent and excessive purgatives should be avoided. The recurrent rise of temperature is possibly caused by intestinal intoxication, due to colonic stasis, and is often a grave complication. Suitable diet and abdominal massage, &c., will assist the patient.

I am, Sir, yours faithfully,

Trinidad, Nov. 11th, 1924. R. C. BENNETT, M.B.

To the Editor of THE LANCET.

SIR,—In answer to the request made in "Clinical's" letter published in the last issue of THE LANCET to hand (Oct. 11th) I would suggest that he try treatment with bile, ox or pig, by mouth and by enema. Very little stress is laid on the use of bile in the university courses on therapeutics, but recent experience has convinced me that no other treatment is so efficient in cases of obstinate constipation such as "Clinical" describes. I could cite several instances quite as bad, if not worse, that have been completely cured by this simple mode of treatment. Perhaps the reason why bile is so seldom used is because it is such an unpleasant thing to take by mouth, besides being liable to go bad, but pills of pig and ox bile are made in quite a convenient form by Burroughs, Wellcome and Co., and both pills and a preparation for use as an enema are made by the Laboratoire Panbiline, Annonay, Ardêche, France.

I am, Sir, yours faithfully,

South Africa, Nov. 6th, 1924. C. LUNDIE.

TEACHING ON CONTRACEPTION.

To the Editor of THE LANCET.

SIR,—In view of your contention, in an annotation published last week entitled Teaching on Contraception in Medical Schools, that students' text-books on gynæcology omit to discuss the principles and technique of contraception, you may note that in "Gynæcology and Obstetrics," by Dr. J. S. Fairbairn, reviewed in your own columns on its appearance some six months ago, a section in the chapter on Social and Ethical Aspects is devoted to an exposition of this subject. I am, Sir, yours faithfully,

A STUDENT.

*** Dr. Fairbairn's remarks on the subject are clear and impartial.—ED. L.

A WARNING.

THE Chief Constable of Leeds sends word that a man who gave the name of Mr. Ferguson, aged about 70, called on a doctor in that city and asked for financial assistance. He stated that he was a doctor, and obtained his M.B., Ch.B. Edin. in 1894, and had practised in Harley-street and Henrietta-street, and also in Edinburgh, and at present he was residing at Bradford. He produced a letter purporting to be written by another doctor, who had apparently assisted him to the extent of 10s. No one with the name and qualifications given appears on the Medical Register.

An Address
ON
NVALIDITY FROM CHRONIC JOINT DISEASE.

Delivered before the Royal Institute of Public Health

BY JAMES R. KERR, C.B.E., CH.M. GLASG.,
SURGEON IN CHARGE OF THE PILKINGTON SPECIAL HOSPITAL, ST. HELENS, LANCS.

IN the report on the Incidence of Rheumatic iseases, issued by the Ministry of Health, there re arresting figures showing the amount and the ost of industrial invalidity from diseases, acute and hronic, classed as "rheumatic." We find that hronic joint diseases cost the approved societies early £1,000,000 a year in sick benefit, and are esponsible for the loss of over 1½ million weeks of ork per year. From the financial standpoint alone he importance of chronic joint diseases is therefore ery great.

The chronic joint diseases to which I shall refer clude chiefly the conditions variously described as eumatoid arthritis, osteo-arthritis, and arthritis eformans, other forms of arthritis being excluded. he thesis I submit consists of two parts—(1) that he term "rheumatic" when applied to chronic int diseases is frequently misleading, and is a ource of danger to the patient; (2) that intensive rthopædic treatment can do much to counter the isabilities associated with these diseases.

DIVERGENT VIEWS OF THE PATHOLOGY OF RHEUMATIC DISEASES.

Now, although these chronic joint diseases are enerally classified as "rheumatic," there is hardly ver a complete and convincing discernment of the teps and stages from their chronic condition back o the well-defined specific fever known as acute heumatism. Yet, as Prof. R. Stockman, of Glasgow, oints out, "rheumatoid arthritis" is not an inap- ropriate term since, as in acute rheumatism, so lso here, we have (*a*) lesions of the fibrous tissue of he locomotor system, and (*b*) the joints prominently volved. The confusion of nomenclature is very reat, and we find eminent authorities at diametric ariance one with the other, the reason being the nsatisfactory state of the ætiology and pathology f the disease. Indeed, on any accepted classification here are, say, 15 per cent. of cases which do not it into any of the categories.

For the present purpose I cannot deal with the acteriological researches of the past, nor can I ven refer to the present lines of investigation. We o know, however, that many varieties of micro- rganisms are capable of producing arthritis in man nd in rabbits. We also know that during an attack f acute rheumatism a certain amount of immunity ust be established, seeing that natural cure takes lace. As Prof. Stockman says:—

> "The reason of the rapid and complete disappearance of nflammation from the joints is of extreme interest. It can nly be explained by supposing the development of a local mmunity through the formation of an antibody, but such mmunity is evidently not very lasting, as the same joint may gain become inflamed during the illness. So far as I am ware no researches have ever been made to elucidate this. t is possible that the closed cavity of a joint favours the ufficient accumulation of an antibody, for the same rapid ubsidence of inflammation does not take place in the open ibrous tissue structures, but rather the contrary. In them he inflammation tends to linger on."

We may take it, then, that our pathological know- edge of acute rheumatism has got some length, eeing that we acknowledge the existence of causal rganisms, the formation of antibodies, natural cure, nd therefore some degree or type of immunity. Further, it is well known that in a joint suffering from acute rheumatism the synovial membrane is in a state of intense hyperæmia, the cells on its surface proliferating and containing many nuclei. These are the changes one finds in any infection of a joint, and they are similar to the reactive efforts of any acutely inflamed region.

Many chronic joint disabilities called "rheumatic" run a less clearly observable course. We know that the liability to attacks of acute rheumatic fever diminishes after the age of 35 years, and that the bulk of the chronic joint lesions are recorded in patients over that age. Yet 80 per cent. of these chronic joint patients give *no* history of a previous attack of acute rheumatism, and so one can infer that acute rheumatism does not predispose to joint disability of the chronic type at a subsequent date, and it is even conceivable that a degree of immunity is established against what we may reckon as a low-grade infection, whose results take months or years to become manifest.

There is considerable evidence, clinical and pathological, tending to suggest that the causal agent produces its various effects, subject to the modifying conditions of its immediate environment and of the physiological or pathological state of the joints and synovial membranes of the host, and that throughout the range of chronic "rheumatic" disabilities definite co-relation exists. I would class these disabilities under one category, although the prominent manifestations in differing types demand treatment apparently different, yet fundamentally and essentially based on definite visualisation of the pathological changes, the present stage, and the likely course of the disease in each case. The most appropriate name can be determined later, but it is of interest to note that the Encyclopædia Britannica (Medical) in 1901 stated that the terms arthritis deformans, rheumatoid arthritis, and osteo-arthritis are synonymous and indistinguishable; that the American view is that arthritis deformans is a synonym for rheumatoid arthritis and quite distinct from osteo-arthritis; and that authorities in both countries are found to accept or reject these classifications. It would be clearly wrong to dogmatise, but I am bound to say that in the important matter of the amelioration or cure of the patient's disability the pathological pictures I have formed have proved most useful as foundations on which to base prognosis and treatment.

COURSE AND ORDER OF THE JOINT CHANGES.

Briefly, I assume that cartilage and bone changes in the joint follow after failure of the synovial membrane and antibodies within the joint. The stage of even extensive hypertrophic villous synovitis may endure for years before cartilage erosion at the weight-bearing surfaces takes place, but wherever the hypertrophied synovial membrane is constantly in contact with cartilage some erosion is liable to occur. In operating on such knee-joints one observes the hyperæmia and loss of lustre of the cartilage at the region of the subpatellar pad, at the margins of the condylar notch which is non-weight-bearing, and also at the periphery where villous masses lie constantly overlapping. Accordingly recession of the hypertrophic synovial membrane is one aim of our treatment associated, of course, with orthopædic considerations regarding joint function. One is aware that much research has been directed towards the discovery of the causal organism of this chronic villous synovitis, and we find that a disease has been called "chronic villous arthritis" on account, no doubt, of the cartilage erosion observed. To explain the observation of the two appearances within the joint—namely, the villous hypertrophy and the cartilage erosion—it has been suggested that probably several different organisms are producing the long-continued irritation. I urge that the avascular cartilage is affected secondarily, and that chronic villous arthritis is the later stage of chronic villous synovitis—i.e., when cartilage erosion has occurred—and, in fact, that those chronic joint diseases actually consist of different stages or combinations of stages of the one disease.

Theories and views may require modification as further facts are disclosed. It may be that recurrent attacks of subacute or mild rheumatism in a joint have the effect of devascularising, sclerosing, and atrophying the synovial membrane and rendering it less liable to respond—10, 20, or 30 years later—to the continuous or intermittent stimulus of organism or toxin.

The Synovial Membrane.

It seems to me that the end-result in a joint varies with the type, previous history, and present condition of its synovial membrane. I believe that synovial membrane has a highly specialised function, of great adaptability, comparable to the omentum or the peritoneum, which also are called upon to deal with a variety of assaults. As an example of the adaptive and defensive powers of the synovial membrane one may cite the case of sepsis in the knee-joint. The modern surgical treatment of sepsis in the knee-joint is based on an enlightened appreciation of the power and function of the synovial membrane, and has given results which are in contrast to those of the former methods, and recovery of function has been obtained in hundreds of cases. Yet when we consider a joint having a different type of synovial membrane, as, e.g., an inter-phalangeal joint, we find that a correspondingly unsatisfactory response is made by it, and the most modern treatment of infection in such a joint gives results which are often very bad. The synovial membrane seems to me to be the important factor in the resistance of a joint to invasion—microbic or toxic, chronic or acute. The pathological changes resulting seem to have close relation to the functioning power of the synovial membrane of the particular joint concerned. It must be borne in mind that synovial membrane is not really an epithelial structure. It consists of flattened, irregular, stellate, connective-tissue cells, with definite gaps in the surface, so that the term epithelioid is more accurate. It has between it and the fibrous tissue capsule a layer of soft fatty tissue which pushes and expands the synovial membrane down into any vacancy in the joint as the normal movements are executed. There are loops of blood-vessels in intimate relation with the peri-articular vessel groups, and on stimulus the vessels of synovial membrane become engorged, and a reactive, defensive hyperæmia is produced. Proliferation of the epithelioid cells occurs, and eventually synovial fringes may be formed, as is observed in numerous cases. The knee-joint responds readily to treatment, and this, I think, is due to the reactive possibilities of its synovial membrane. After the synovial membrane has become fibrous, sclerosed, and devascularised, then one expects and finds that the cartilage becomes thinned, and degeneration and atrophy proceed. Later fibrous tissue from the bone, and ultimately bone itself occupies the joint spaces.

Degenerative Process in Different Joints.

In the case of the knee-joint there is a long and successful resistance to this degenerative process, but in the hip-joint its advance is steady. Yet in these cases of "morbus coxæ senilis," or "chronic osteo-arthritis" of the hip, which are not uncommon in patients between 30 and 40 years, it may be that in the absence of a completely adequate protective and adaptable synovial membrane, some degree of protection is still offered. At all events, in cases where X ray examination shows a relatively early stage of the disease we find that appropriate orthopædic and physiotherapeutic measures give some relief to the general condition, and also seem to effect some retardation in the progress of the disease. In the presence of advanced bony changes one has, of course, to use some of the modern plans to relieve pain and secure stability and power of locomotion.

In the finger-joints reactive hypertrophy of synovial membrane is limited by the firm and tight capsule and periarticular structures, and one finds degenerative changes relatively early, although it has to be remembered that these are secondary to contracture and are chiefly of the decalcification type, which is amenable to treatment.

THE PRACTICAL ASPECT.

The foregoing will probably serve to indicate the enormous field open to research in this subject. With regard to what may be called the practical aspect my experience of cases previously investigated elsewhere, who had suffered removal of various infected organs and had undergone medical and massage treatment, but who nevertheless were crippled with joint lesions, makes it manifest that while research was seeking the actual ætiology a great deal remained undone to relieve what one may call the symptoms—which really are of first concern to the patient. It seemed to me clear that the first warning of joint injury—microbic or toxic—was given through the synovial membrane. In particular, knee-joints gave early signs, although many patients delay seeking help till the signs are advanced and serious crippling threatens or is actually present.

A Typical Case.

Let me sketch a typical case—a married woman of 48 who has been bedfast for six months owing to contractural flexion of both knees, which were swollen and painful when moved. The label rheumatism had been applied. The friends and neighbours sympathised. The eldest daughter was recalled home from a good post, and as she had been the chief wage-earner for the household there was financial catastrophe, especially for its younger members. All this was because of the patient's inability to walk about the house and attend to even directional domestic duties. What the woman suffered from was chronic villous hypertrophy of the synovial membrane of her knee-joints, and modern treatment has proved successful beyond expectations. I need not detail the procedures we employ, but it is sufficient here to say that everything is guided by orthopædic considerations and with a view to the functional needs. The knees are straightened without delay, all harmful reaction in the joint being avoided. Rest and repair are encouraged by supporting appliances modified to suit, and from time to time as progress is made. Intensive physiotherapy directed to the atrophied muscle groups, and particularly towards increasing the blood-supply collateral with that of the pathological synovial membrane, such agencies as hot water, hot air, melting paraffin wax, ionisation, faradic stimulation, massage, mechano-therapy, &c., being used for the purpose, the forms of treatment and the dosages being selected appropriately. In three weeks the patient should be able to stand up, and in two weeks more to walk with two sticks, although her hips will still be stiff from flexion-deformity developed while she was bed-fast. Progress then goes on rapidly, and she is restored to some degree of working capacity in, say, three months. In her case X ray examination reveals no bony change, and in all probability bone changes will develop very late in the disease, if at all, provided that the posture and function of the joints are maintained by the proper means.

A joint untreated degenerates and disintegrates, with erosion of cartilage, and fusion of bone following the usual course, and accompanied by hip, ankle, and foot deformities, which render even the nursing services most difficult and discouraging in the comfortless downward path which inevitably awaits the patient. Briefly told, that is the story of thousands of women. The balance seems to be delicately poised between power of resistance and the gradual assailability of synovial membrane as regards these chronic infections. Appropriate treatment commenced at a reasonably early stage turns the balance in the ajority of cases. The necessity for wage-earning, or he demand of domestic duties prevails in a great umber of cases to delay the moment of seeking elp, and so one finds these patients working on for ears with steadily increasing disabilities, relieved om time to time by periods of rest, till a stage of otal disability arrives, when general and local onditions are unfavourable for rapid or complete ecovery. About 1 in every 100 working women etween the ages of 45 and 55 years suffers from ome chronic joint trouble, most commonly in the nee, and both knees are often affected. The number f cases among men is almost as great. Chronic joint iseases cost the approved societies about £1,000,000 er year (as has been stated already), but there has to e reckoned also the personal loss of wages and the uffering. This enormous bill can be reduced by early nd adequate treatment on the lines I have outlined. t has to be remembered that many women between 5 and 55 years of age are employed in domestic rvice, mostly outdoor, and being dependent on heir earnings they tend to suffer long till crippling isables them and the duration of their incapacity ecomes very great. Sooner or later they become a harge on the country.

In the most broad way I have depicted one type f case, its course and its treatment, and the results.

PRINCIPLES OF TREATMENT.

In many respects the patient in better financial ircumstances is often not much more fortunate. er general condition is well looked after, but the ocal or orthopædic needs may have insufficient ttention, and time, from this point of view, seems be lost in visiting various resorts according to the eason, and to overlooking several primary warnings. rrors can be made by attempting to relieve "rheuaticky" knees without reviewing the entire locootor apparatus. Systematic examination usually eveals a predisposing cause of some prolonged rain. It may only be an increasing eversion and ronation of the feet associated with some degree of nock-knee, but to stabilise the limb by rectifying a abitually bad posture with possibly the help of odifications in the footwear may make all the ifference in the activities of a woman. Foot strains nd foot pains from any cause require correction. he patient's general fitness may have been well aintained, but the "creaky" and stiff knees do ot respond satisfactorily to the general treatment hich has been undergone, and usually require pecific and specialised attention. The rate of proress of the crippling is, of course, slow, but, on the ther hand, it has to be noted that after a good egree of recovery has been obtained by treatment, he joints can be kept in satisfactory condition by an ccasional short course of treatment.

A similar chronic condition of synovial hyperrophy is common among men also, and in view of he frequency of an injury being the attributable ause, a careful preliminary examination of the knee required. When a blow is stated to have been eceived the situation is nearly always described as st below the knee-cap. In cases of a twist or wrench he same region is indicated. On examination one ommonly finds a thickened and tender subpatellar ad. The question of aggravation by injury or ccident arises, but we need not discuss it here.

The Operation of Synovectomy.

Under treatment improvement or recovery follows. great deal of industrial invalidity in men arises om this condition of the knee-joint. In certain ases the recurrent effusions, associated with the reat hypertrophy of the synovial membrane, have amaged the knee ligaments, and instability is becomg an additional complaint, wage-earning power eing absolutely lost. In selected cases I have perrmed the operation of synovectomy, excising in ne mass the entire suprapatellar pouch with its xcessively hypertrophied and its grossly villous synovial membrane. The posterior compartment of the joint, and any fringes or villi at the periphery or elsewhere, are cleared out as much as is possible. This operation is performed through the split-patella route and a painless, weight-bearing, and movable joint is obtained in most cases. Even with a limited movement in the joint the stability and freedom from pain are highly acceptable to the patients. In the case of a working man free knee movement is an important additional consideration. We plan the post-operative treatment for early active and passive movements—i.e., commencing about the tenth day, and continue towards full range of movement with contemporaneous development of muscular power by faradic stimulation, massage, and exercises. The procedure is utilised at the Mayo Clinic, and the success of their earlier cases is now encouraging them to operate in less advanced conditions, and this seems a logical course, for at the operation one can eradicate at least 90 per cent. of the disease in the joint. We thus see that invalidity from this very common form of chronic disease in the knee-joint can be enormously reduced by the methods described. For most cases intensive physiotherapy treatment with correction of simple orthopædic errors is sufficient. In the ultimate or penultimate stages, carefully planned and possibly extensive operative intervention may be required.

Similar methods are applicable to other joints, which, however, do not usually offer so good a prognosis as in the case of the knee. In children and young adults the rapid course which the disease sometimes takes in the direction of cartilage erosion and its sequelæ requires a most guarded prognosis. Each case and condition requires a full review and careful diagnosis. Postural and static and most painful disabilities of the feet, often called "rheumatics," which the sufferers, especially women, accept quite patiently as a heritage, do not come under our scope except from the point of view of error in diagnosis and their relative susceptibility to alleviation by proper means. Nor need one refer further to the so-called "rheumatic" pains in knees, hips, and spine due to sudden alterations in the height of the heel of the shoe, either to meet a changing fashion or to maintain deportment as weight and age increase. In so many cases are "bunions" quasi-traumatic and postural results, that the association with chronic joint diseases need not occupy us here.

In the upper limb disease of the shoulder follows the course of the hip, but the weight-bearing factor is absent. Here periarticular lesions, unless treated, are followed steadily by postural cripplings, which later require vigorous and thorough correction.

In the elbow-joint we find that chronic disease is accompanied at an early stage by bone changes, which are visible under X ray examination. Here the differential diagnosis from myositis ossificans requires to be borne in mind, particularly as the patient may be only, say, 30 years of age, and the question of occupational injury may arise. The wrist and hand are particularly affected by what is described as rheumatoid arthritis or infective periarthritis, the latter term being accurately descriptive. Women are great sufferers from this type, being affected according to various age-groups, from two to six times as frequently as men. The inter-phalangeal joints of one or both hands are first involved. They first appear swollen and spindle-shaped, but pain is not prominent. The general appearance of the patient suggests a toxic state, and, as one would expect, further joints are progressively involved, particularly those of the carpus. X ray examination shows no bony change at first. The swelling is due to thickening of the synovial membrane, the capsule, but chiefly of the periarticular fibrous tissues. Later, when X ray examination shows great modification of the joint structures, these consist of the signs of atrophy and disuse. Later, again, there is dislocation from contractures, fibrous ankylosis, and ultimately bony union. The early bone changes are those of decalcification, which are essentially trophic changes, and are similar to those found frequently after nerve lesions.

Physiotherapy for Degenerative Changes.

Experience of intensive physiotherapy treatment of such degenerative changes goes to show that in many cases they are definitely amenable to great improvement, so that subsequent X ray examination shows restoration of the joint contours and joint spaces, and that is a point I want to urge, not only because of the financial loss to the worker and the State, but also because of the patient's suffering and distress of mind which follow the incidence of this disease, and the attitude of helplessness which has tended to encompass all connected with its course. Here, as in the chronic knee condition, the synovial membrane remains till the penultimate phase in a state of reactive hypertrophy, but in these smaller joints, of a different structure, offering less room for expansion, and probably defective in blood-supply, for example, the joint of the phalanges or of the carpus, the accompanying accommodative hypertrophy and proliferation of the synovial membrane cannot take place to a sufficient extent. But if one gets cases before new fibrous tissue predominates in the joint cavity, much can be done by physiotherapy treatment. In later stages other methods are employed according to the needs of the case, and the ingenuity and orthopædic skill available. The treatment of these conditions is an uphill fight at all times, and not being associated with dramatic effects, such as are achieved in acute abdominal work, it demands of those in charge of the case temperamental qualities of a kind recognised well by the unfortunate victims.

My remarks have aimed chiefly at establishing a working basis on which treatment should proceed. A large experience under particularly favourable conditions convinces me that it is well worth while urging for early recognition and treatment of these chronic joint diseases which are contributing to so much suffering, invalidity, and loss of money to the industrial population.

On the ætiology and pathology of chronic joint disease earnest and able investigators are at work. Much has been achieved, but the last words are still to be written. Here, as in virtually all instances of scientific advance, practice breaks ground for theory, and it is not beyond the record to say that hope is being radiated on the afflicted from the results of intensive, coördinated, persistent treatment, carried on with confidence and in the modern orthopædic spirit.

CHRONIC BACKACHE IN GYNÆCOLOGY.*

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A GOOD deal has been written in recent years about chronic backache in women, and on the whole the tendency has been to take a broader view of the subject. Formerly, a woman with backache was considered to be the peculiar property of the gynæcologist, but the pendulum has now swung in the other direction and large numbers of these cases are claimed by the general physician and the orthopædic surgeon. Martyn,[1] writing from the physician's point of view, believes that many of the backaches are due to infection and obtains good results by attention to septic foci in the mouth and throat. Goldthwait[2] thinks that undue mobility of the sacro-iliac joints as a result of pregnancy or even menstruation is an enormously frequent cause of the backache, and would therefore consider most cases to be orthopædic in origin. When full allowance has been made for these cases there will still remain a large number in which a definite gynæcological lesion is present, and the importance of this lesion is shown by the good results which follow its removal by surgical treatment, For instance, Bullard[3] claims 85 per cent. of cures in 721 cases of backache treated in this way.

It is generally agreed that women suffer more frequently from backache than men, and their greater susceptibility must therefore be due to physiological or occupational factors peculiar to the sex. Certain forms of housework no doubt put a special strain upon the spinal muscles, but these occupations are not more tiring than the heavy work of unskilled labourers for instance, and so far as I know the latter do not suffer in any special way from pain in this region. The occupational factor must therefore be relegated to a position of secondary importance, and the real cause sought for in some lesion directly or indirectly connected with the sexual organs. The function of menstruation, the growth of the uterus, and the stretching of neighbouring structures in pregnancy, the strain on the abdominal muscles, pelvic joints, and supports of the uterus and pelvic organs during labour, and the special liability of the female sexual organs to infections and tumour formation, readily explain the greater incidence of backache amongst women.

Backache is a very common symptom in gynæcological patients, but varies much in severity and may be so slight as to be of little importance. In some women it is obviously severe, in others it is only mentioned in reply to a leading question, so it is difficult to obtain reliable information as to its frequency One hundred and twenty-nine hospital patients were asked specifically if they were troubled with backache and 43 per cent. answered in the affirmative. This figure no doubt includes many of the slighter cases and rather exaggerates the importance of the symptom A better plan is to take a series of cases where the clinical history has been investigated by one individua in a uniform way and each patient allowed to describe her symptoms without any prompting. There are obvious disadvantages in this method, but on the whole the results will give a fairer idea of the rea importance of backache. I have studied the case cards of 1000 patients seen in my own consulting-room and the results form the basis of the following observations. In the series I found that 235 cases, or about 23 per cent., complained of backache, and that it was the principal symptom in a third of this number

Gynæcological backache is generally confined to the lower lumbar and sacral regions, especially the latter, and is not usually the only or indeed the chief symptom. Its value in diagnosis is therefore small, and for this reason it is apt to receive very little attention. The pain is often looked upon a part of a neurosis—"some women's backs always ache"—but although this may be true of some cases there remain a large number where a definite lesion can be discovered and the pain cured or very much relieved by suitable gynæcological treatment. The backache varies much in character; it may be described as a dragging or twisting, as a dull constant ache, or as a soreness. It is generally located ove the sacrum, sometimes to one or other side, and i often associated with pain in the lower abdomen and less frequently with pain down the thighs. One patient wrote: "I am not free from pain in the lower region of my back about six square inches." The pain may be constantly present or only fel after exertion or at definite times in relation to the menstrual periods. It may be of long standing dating from before marriage or even from puberty but in the majority of married women the trouble i stated to have commenced shortly after a confinement

Social and Obstetric History.

The great majority of the cases investigated belonged to the class who either have to earn thei own living or perform heavy household duties at home Twenty-two of the patients were single, rather les than 10 per cent.

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* Being one of the opening papers of a discussion before the Manchester Medical Society on Dec. 3rd.

The figures as to pregnancy were as follows :—

Married, nulliparæ	48 (21 per cent.)
,, uniparæ	54 (23 ,, ,,)
,, multiparæ	102 (45 ,, ,,)

Gynæcological Lesions Associated with Backache.

The diseases found to be most commonly associated ith backache were genital prolapse, chronic cervicitis, ndometritis and metritis, adnexal and peri-uterine nflammation, uterine fibroids, adenomyoma, and ancer of the cervix. Table I. gives the total cases each group, and the number and percentage of ose complaining of backache.

TABLE I.

Disease.	Total cases.	Cases of backache.	Per-centage.
enital prolapse	227	66	29
hronic cervicitis	44	26	59
hronic endometritis ..	108	46	42
hronic metritis	53	11	20
dnexal and peri-uterine inflammation	101	25	24
terine fibroids	82	15	18
denomyoma, &c.	29	15	51
ancer of cervix	35	9	25
varian tumours	31	3	9

There were 63 cases with no gynæcological lesions, nd 10 of these complained of backache. It is not ontended, however, that of over 200 cases of backache nly 10 were non-gynæcological; the results of perative treatment show that even when the gynæcogical lesion is cured, some of the patients still omplain of this symptom, and in many of these he pain was probably due to an entirely different ause. Retroversions and retroflexions of the uterus ave not been placed in a separate group although hey are generally looked upon as the principal auses of backache. They do play a part, but not a redominant one, and in my opinion the size of the terus, the condition of its walls, and the strength r otherwise of the supporting structures of the pelvic oor are of more importance in this respect than ere changes in the direction of the uterine axis. obile retroversions and flexions have been included the cases of prolapse, chronic endometritis, and hronic metritis, and the adherent cases naturally ll into the group of adnexal and peri-uterine inflamations.

The term chronic endometritis is open to criticism n pathological grounds, and is used here merely as matter of convenience to describe the type of case fully investigated by Donald and Fletcher Shaw.[4] he symptoms as described by these authors are enorrhagia, metrorrhagia, leucorrhœa, dysmenorhœa, and chronic pain, and two or more of these are enerally present in each case. The physical signs re enlargement of the uterus with undue tenderness n bimanual examination. Table II. shows the osition of the uterus and the incidence of backache 108 cases belonging to this group.

TABLE II.

Chronic endometritis.	Total cases.	Backache present.	Per-centage.
nteversion and anteflexion .	78	31	40
etroversion and retroflexion	30	15	50

The figures show that, although backache is ndoubtedly more common with retroversion and etroflexion, the greater frequency is not sufficient o warrant the importance attached to these dislacements in this connexion.

Results of Operative Treatment.

All the backache cases were "followed up" and sked about the effect of the operation on this articular symptom. Replies were received from 152 patients as follows: No backache since operation, 69; much improved, 42; no better, 41. The improved cases generally stated that the backache was now only felt after any special exertion. The replies taken as a whole show that 73 per cent. of backaches associated with a gynæcological abnormality were cured or much relieved by appropriate surgical treatment, and that in 45 per cent. the pain completely disappeared after the operation.

Results of Treatment.

The results of treatment in the different groups must now be examined.

Genital Prolapse.—The operation performed in every case was a double colporrhaphy with or without amputation of the cervix. Replies (51): No backache since operation, 30; much improved, 12; no better, 9. The results in cases of prolapse are therefore distinctly good, the backache being cured or much relieved in 80 per cent. of cases. The figures include seven cases of complete prolapse and all were completely cured by colporrhaphy.

Chronic Cervicitis.—Two cases were treated by total hysterectomy (and not relieved of their backache), the others by curetting and amputation of the cervix. Replies (20): No backache since operation, 7; much improved, 6; no better, 7. The results in this group are moderately good, 65 per cent. being cured or much relieved.

Chronic Endometritis.—The majority were treated by curetting, the results from this operation being as shown in Table III.

TABLE III.

Uterus.	Cured or much relieved.	No better.	Total.
Anteversion and anteflexion ..	10	3	13
Retroversion and retroflexion ..	4	3	7

In addition to the above, the uterus was replaced by a round ligament sling operation in four cases, but the results were very disappointing. One patient was rather better till she became pregnant again when the pain recurred, the other three reported that the backache was as bad as ever. The figures are much too small to throw any light on a subject about which there is such a wide difference of opinion, and it is only fair to state that very high claims have been advanced by those who make a practice of replacing the uterus by operation in cases of backward displacement. Bullard found that backache was complained of in 129 of 149 cases of mobile retroversion and succeeded in curing about 80 per cent. by replacement operations. Donald and Fletcher Shaw lay no special stress on backache in chronic endometritis even when the uterus is retroverted, but include it under the heading of chronic pain. In 107 cases treated by curetting this symptom was improved in a little over 84 per cent., and the general result of the operation was rather better in cases where the uterus was retroverted. As to the good results claimed by ventrifixation and similar procedures, these authors believe that if some degree of prolapse is associated with the other changes in the uterus the sensation of weight and dragging may be relieved by these operations. It is very easy to overlook a certain degree of prolapse especially when the patient does not actually complain of anything coming down, and I think that in many of the cases of retroversion with backache the pain is chiefly due to weakening of the pelvic floor. My figures in the prolapse group prove that backache can be cured or much relieved by colporrhaphy in a large percentage of cases, although the uterus still remains in a backward position after the operation.

Chronic Metritis.—Replies (8): No backache since operation, 4; much improved, 1; no better, 3. The uterus was anteverted in eight and retroverted in three of the 11 cases of chronic metritis. One case was treated (and cured) by curetting and radium, the others by total or subtotal hysterectomy. A third of the patients were not relieved of their backache even after removal of the uterus and appendages.

Adnexal and Peri-uterine Inflammation.—Replies (21): No backache since operation, 9; much improved, 7; no better, 5. 76 per cent. were cured or much relieved by operation, and the results were better in cases where both appendages were removed as well as the uterus.

Uterine Fibroids.—Replies (13): No backache since operation, 7; much improved, 4; no better, 2. In only four of the 13 cases was the tumour sufficiently large to cause pressure on the pelvic walls and the backache was presumably due to the weight of the enlarged uterus.

Hysterectomy, either total or subtotal, was performed in every case and the ovaries were also removed in all except two (both cured).

The results are quite good, but the percentage of complete cures is not as high as one would expect. A heavy and enlarged fibroid uterus is such an easily understood cause of backache that its removal would be thought to give complete relief in almost every case.

Adenomyoma, &c.—In this group are included the adenomyomata involving the tissue behind the cervix and also the cases of "tarry" cysts or "endometriomata" of the ovaries. Replies (10): No backache since operation, 3; much improved, 3; no better, 4. The results as regards backache are not very good considering that the uterus and appendages were removed in every case, but this is not surprising when it is remembered how the growth infiltrates the rectal wall and pelvic cellular tissue. One of the worst cases of chronic backache I have seen belonged to this group. At the first operation double ovarian "tarry" cysts were removed but not the uterus. The pain in the back became more severe, and as much nodular thickening could be felt behind the cervix it was decided to try the effect of a total hysterectomy. This was done, but the adenomyomatous tissue could not be completely removed as it surrounded the rectum and extended on to the lateral pelvic wall. The patient recovered well from the operation, but her backache remains as bad as ever.

Cancer of the Cervix.—Nine cases of cancer of the cervix complained of backache and of these all but two were inoperable. Wertheim's operation was performed in the operable cases and both are well at the present moment and quite free from backache.

The Mechanism of Gynæcological Backache.

I am convinced that the great majority of gynæcological backaches are due to certain muscles becoming fatigued as a result of extra strain being thrown upon them. The spinal muscles may be affected in this way in the case of large abdominal tumours, but with lesions confined to the pelvis the strain falls chiefly on the muscular components of the pelvic floor, the levatores ani. These muscles are normally protected against undue strain by the strong fibromuscular tissue of the parametrium, but when that barrier is weakened by stretching or by the weight of a large uterus or tumour they may become fatigued and cause aching pain in the back. This appears to be a reasonable explanation of those cases of backache associated with enlargement of the uterus or prolapse. There may be more than one factor present in a particular case, and this may account for the fact that the backache still persists after removal of the more obvious cause. For instance, of the cases treated by removal of the uterus and appendages, 30 per cent. still complained of this symptom after operation. Fatigue occurs more readily in some individuals than in others, depending on the condition of the nervous system, and we therefore find that the backache is not a constant symptom in these conditions and may even be improved by attention to the general health and without removing the actual cause.

In cases where there is no question of pelvic floor weakness the pain may be due to irritation of the sensory nerves which serve the pelvic viscera and are contained in the sympathetic system. These fibres are the axons of spinal ganglion cells, and so the pain may be referred to the somatic area supplied by these same ganglia—i.e., the back and lower abdomen. The source of irritation may be some abnormality of the sexual organs themselves (inflammatory conditions of the uterus, especially the cervix, &c.), or a lesion affecting the pelvic cellular tissue and involving the sympathetic nerves and plexuses there (advanced cancer of the cervix, adenomyoma, pelvic cellulitis, &c.).

Conclusions.

1. Chronic backache is an important symptom amongst gynæcological patients, being present in from 20 to 30 per cent. of all cases.
2. The importance of backache in uncomplicated retroversion and retroflexion has been much exaggerated as it is found almost as frequently in cases where the uterus is in a forward position.
3. The most important factor in producing backache is fatigue of the pelvic-floor muscles, and this may result from increased weight of the uterus but more frequently from stretching of the parametric tissues.
4. Where there is a definite indication for surgical treatment the backache can be cured or much relieved in over 70 per cent. of cases, the results being especially good in cases of prolapse treated by colporrhaphy.

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MASSIVE COLLAPSE OF THE LUNG IN ACUTE POLIOMYELITIS.

Case Reports and Comments.

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The occurrence of massive collapse of the lung in acute poliomyelitis is a condition of such rarity as to warrant the report of a case. A search of the literature of Heine Medin's disease has been entirely without result so far as the finding of a similar example is concerned. It is doubtful if the rarity of atelectasis in acute poliomyelitis is as great as this would seem to indicate. Other instances may have been overlooked in the study of the more prominent clinical phenomena, or may have been considered as pneumonic complications. This is the more likely, as the condition would presumably originate mostly in the bulbo-spinal forms of the disease in which the medulla and upper cervical region of the cord are involved, and such cases are many times rapidly fatal. The following report of a patient presenting this unusual symptom of a massive collapse of the lung was observed at the Kingston Avenue Hospital.

S. M., girl, aged 10 months, was admitted on Nov. 10th, 1921, with a diagnosis of acute poliomyelitis.

History.—Family history irrelevant. Previous history: varicella at 4 months.

Present Illness.—On Nov. 9th the child developed a high fever (104° F.) and the physician called made a diagnosis of pneumonia. Towards evening the parents observed that the child was breathing very rapidly, and that there was retraction of her lower chest with respiration. The child was in a drowsy state and "slept all day." On the 12th it was noticed that the neck was weak, so that the child could not hold her head up; the fever, however, had entirely subsided. On the following day the temperature remained normal, and for the first time a suspicion of poliomyelitis was entertained by the family physician.

Physical Examination on Admission.—The child is a well-nourished and very well-developed baby, mentally quite bright, but at present extremely irritable on being disturbed, and quite acutely and desperately ill. She lies in her crib with her head turned to the right, crying continually in a peculiar low, soft, feeble voice. The skin and lips are of a rather cyanotic colour. Her respirations are extremely embarrassed. The respiratory rhythm is irregular and of exaggerated jerky type, characterised in inspiration by a marked upward and forward movement of the chest with the accessory muscles brought into play, and a visible tugging movement of the larynx and trachea, associated with a retraction of the upper abdomen, giving it a scaphoid appearance. On expiration there is an equally sudden downward movement of the ribs and a protrusion of the abdomen. When the child cries the respirations become more rapid, and assume a still more irregular rhythm, and beads of perspiration stand out on the face. The pulse is very irregular. The second sound at the apex is of a slightly impaired quality. MacEwen's sign is present and markedly positive. The neck is painful on manipulation and when the child is lifted up the head drops backward. The pupils are equal and react to light. The expression of the face is very anxious, the skin is of an ashen-grey colour with cyanosis of the lips, and dilatation of the alæ nasi occurs with inspiration. There is an asymmetry between the two sides of the face, noticeable when the patient cries.

Lungs.—The left side especially shows pronounced physical signs which might at first be taken for those of a pneumonic consolidation or effusion. There is impairment of resonance over the left lower posterior chest, including the axilla from the seventh rib downward, and over this same area there are markedly diminished breath sounds or rather almost inaudible breath sounds. Above this area is broncho-vesicular breathing approaching in a few places a pure bronchial note; no râles of any kind heard. On the right side posteriorly there are dullness and slight diminution of breath sounds over the lower few interspaces.

Abdomen.—Liver and spleen are not palpable.

Extremities.—The left upper extremity is partially paralysed, the child apparently being unable to lift the arm above the head. The lower extremities and right upper extremity are apparently normal, except for the loss of the patellar reflexes and slight polyneuritis in the former. No Kernig, Oppenheim, or ankle clonus. The back and neck muscles are weak and the child is unable to sit up. The temperature, pulse, and respiration ratio on admission was 99°, 128, and 62. At no time was the temperature subsequently elevated above normal, and the respirations reached 32 by the fourth day in the hospital.

Subsequent Clinical Course.—Nov. 16th: The peculiar type of breathing still persists but the rate is normal when the child is not disturbed. The paralysis of the face has almost entirely disappeared. The child's general appearance is greatly improved since admission. She still perspires when she cries, and at such times the chest excursion increases greatly and she becomes slightly cyanotic. The cardiac arrhythmia persists, although it is not so pronounced. Her neck muscles and right upper extremity are still paralysed, and the muscular power in the right leg is less than in the left. 20th: General condition is improved. There has been a change in the lung signs. The percussion note over the left lower chest has now altered to an impaired resonance and the breath sounds are more audible at the base than previously, but there is still a marked diminution in vesicular breathing. The right side, on the contrary, presents more pronounced signs. There is impairment of resonance over the entire right lower posterior chest with dullness above. On auscultation there is intensified respiration somewhat broncho-vesicular in type over the right interscapular region, and absence of vesicular breathing over the lower four or five interspaces. No râles and no temperature. 26th: Lungs: The right side anteriorly shows slight impairment of resonance and diminished aeration, especially of the right axillary region. Posteriorly. there is dullness throughout most all of the right posterior chest with an almost flat note over the lower few interspaces, and on auscultation broncho-vesicular breathing over the right upper chest, diminished breath sounds over the upper portion of the right lower, with absence of breath sounds at the base. The left side posteriorly shows an almost normal percussion note and only a diminution in respiratory murmur over the lower three interspaces. Neck and back muscles weak, right lower and left upper extremities unchanged. Dec. 8th: Symptoms unchanged with the exception of the lung findings. The signs anteriorly over the right side are same, but posteriorly there is now normal percussion and breathing as far as the seventh rib, downwards. From there one finds dullness and absence of breath sounds. The left side is practically normal. 13th: The child's general condition and symptoms have improved. With support she can stand and even walk. Jan. 5th: Child convalescent. Breathing is now normal. The left lung shows normal physical signs; the right lung presents a very slight diminution in resonance and in breath sounds at the right base. There is slight dropping of the right shoulder apparently from atrophy of the muscles around the shoulder-joint and she cannot raise her arm above a right angle with her body. The heart rhythm is regular. Dec. 15th, 1922: She walks well, and the gait is steady, but there is slight limping with the right leg, which is considerably under the left in development. The chest is well developed, with normal respiration. No atelectatic areas found. Lumbar punctures were made on nine occasions, from 10–26 c.cm. of clear fluid being withdrawn under pressure, marked at first and afterwards moderate.

Laboratory Data.—(1) Spinal fluids:—Nov. 15th: Globulin, –; Fehling's, 3 plus; 30 small lymphocytes per c.mm. 21st: Globulin, 1 plus; Fehling's, 3 plus; 20 small lymphocytes per c.mm. Colloidal gold curve: 1–1–2–2–1½–½–0–0–0–0. Dec. 15th: Globulin, –; Fehling's, 3 plus; 7 small lymphocytes per c.mm. Colloidal gold: 1–1–1–1½–0–0–0–0–0–0. (2) Cultures from nose and throat: Negative for K.-L. bacilli; Schick test negative. (3) Urinary analysis: Negative for albumin and sugar. (4) Blood count: Total leucocytes, 11,200; polymorphs, 50 per cent.; small lymphocytes, 44 per cent.; large lymphocytes, 5 per cent.; transitionals, 1 per cent.

Discussion.

The diagnosis of acute poliomyelitis and atelectasis is scarcely open to question. A pneumonia and pleurisy with effusion would certainly not have presented the symptoms and signs which accompanied the pulmonary process. The rarity of massive collapse of the lung in acute poliomyelitis lends importance to the case, but a greater interest still attaches to the manner of its production. It is not necessary here to cite in detail the various subdivisions of the two main types of acquired atelectasis—namely, the obstructive and the compression forms—to show that the ætiological factor could not have been any of the well-recognised causes. There are only two possible explanations: (1) the compression of the base of the lungs by the paretic diaphragm, which, although passively, nevertheless carried on an increased respiratory excursion accompanying the dyspnœic type of breathing (which was so peculiar to the case); and (2) the obstruction of the bronchi by inhibition or paralysis of the broncho-dilator fibres of the vagus with over-activity of the broncho-constrictor fibres or tonic activity from irritation of the broncho-constrictor fibres; in either case leading to a constriction of the bronchial muscles and a collapse of the portion of the lung innervated. Between the two possibilities it is not an easy matter to decide, and, indeed, we are in a similar position in this regard to that in which Pasteur [1] and Bradford [2] found themselves in attempting to explain in the former author's cases post-operative massive collapse and in the latter's the same condition occurring after gunshot wounds, especially of the chest. Both were strongly inclined to believe that the condition of relative immobility and retraction of the chest wall and diaphragm on the affected side, which was present, was primary and the collapse secondary. The chest wall in this patient was not immobile, neither was the diaphragm. Hence, we cannot attribute it to this cause. Even if they were, it is certainly open to question whether diaphragmatic weakness or paralysis alone is a frequent cause of atelectasis, for if so we should certainly have expected it long ago to have found a place under the symptomatology of that condition. This case is more suggestive, of course, in the sense that the diaphragm, although in an inversion of its normal rhythm, had a very forcible although passive movement, which might possibly have compressed the bases of the lungs.

The second possible explanation demands serious thought. As far back as 1842 Longet concluded that the vagus nerve supplied constrictor fibres to the bronchial muscles, and subsequently many classical experiments have been carried on which appeared to prove that the lung may be made to contract on vagal stimulation. Mention may be made of the work of Roy and Graham Brown[3] in this regard. Later Dixon and Brody[4] concluded that the vagus contained both broncho-constrictor and broncho-dilator fibres which they believed were controlled by a double medullary centre. They showed that collapse of the lung on the one hand or over-distension on the other might be produced, depending on the force of inflation in one instance and the time allowed for deflation in the other, as a result of bronchial constriction following vagal stimulation in experimental animals. Within the past few years Vernet[5] has called attention to the work of Lesbre and Maignon, who showed that excitation of the eleventh cranial nerve caused the contraction of the muscular layers of the bronchi, and had advanced this as an additional support of his view that the pneumogastric is the sensory nerve and the spinal accessory the motor nerve to the lungs.

Both Pasteur and Bradford admit the possibility of some obscure reflex phenomena in their cases of atelectasis as a cause of the immobilised chest wall and collapsed lung. Pasteur went further and stated that the post-operative cases he had collected had commonly occurred after laparotomies on the lower abdomen, and that the initial disturbance had been either within or in close proximity to the area of distribution of some branches of the vagus nerve. Neither Pasteur nor Bradford was able to present any facts which would clearly indicate that the pulmonary collapse was purely secondary to the immobilisation of the chest wall or the weakness or paralysis of the diaphragm.

Our patient, it will be remembered, presented symptoms which were decidedly suggestive of a cardio-respiratory syndrome of bulbar origin. Peabody, Draper, and Dochez,[6] in their classical monograph on poliomyelitis, have observed a very similar cardiac arrhythmia in several of their fatal cases and applied the name of a rhythmic arrhythmia to it, believing it also to be a vagus nerve disturbance. Wickman[7] has mentioned likewise the peculiar bulbar crisis with attendant changes in pulse and respiration seen at times in Heine Medin's disease. One is therefore thoroughly justified in considering a bulbar lesion in our patient, and if there is a broncho-constrictor and broncho-dilator centre in the same area it is perfectly logical to infer that they might have been concerned in the acute congestive lesion induced by the poliomyelitic virus in the immediate region of these nerve centres. From such a standpoint this case is important as it gives better grounds than previously cited instances for the belief that a true paralytic atelectasis may exist. Further research is required to throw light on this problem, and to show whether paralytic atelectasis may exist, and to study the peculiar reflexes arising which may account for some of the phenomena seen in such cases as those reported by Pasteur and Bradford.

Summary.

A case of acute poliomyelitis is reported in which there occurred a massive collapse of the lower lobes of the lungs, involving first predominantly one side and later the other. Atelectasis in poliomyelitis is a complication of considerable rarity, and could not have been produced by any of the commonly recognised causes of the condition. Two possible explanations are to be considered: (1) The compression of the bases of the lungs by the paretic but over-active diaphragm which kept pace with the dyspnœic respiration which was so peculiar to the case; and (2) the paralysis of the broncho-dilator fibres or the over-activity of the broncho-constrictor fibres of the vago-spinal nerves, in either case leading to constrictor action and a collapse of the dependent lung. While the former explanation cannot be excluded as the primary cause the latter may be more logically incriminated in our case, owing to the concomitant existence of a cardio-respiratory syndrome of bulbar origin. The possibility of a paralytic atelectasis should be given more serious thought in the future both from the experimental and clinical standpoints, so that if it really occurs, as our case is suggestive in indicating, its existence may be established on a more definite basis.

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CONJUGAL TUBERCULOSIS.

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THE subject of conjugal tuberculosis has received much attention from medical writers, who, however, display a great lack of unanimity as to the frequency of its occurrence, the manner of infection, and the morbidity of the disease in the two partners.

Divergent Opinions.

The generally accepted opinion has been that conjugal infection seldom occurs, but recently Dr. E. Ward, tuberculosis officer for South Devon, has published results which seem to show it is by no means uncommon. If we accept the inhalation method of infection as the only one which takes place in phthisis, one would expect, considering the intimate relations of a married couple (where they are, for more than 8 hours out of the 24, under ideal conditions for infecting each other) transmission of the disease from one partner to the other would be relatively a common occurrence. It would appear to a casual observer that it must be merely a matter of time before one partner infects the other, where one is an open case of phthisis—i.e., is excreting tubercle bacilli in the sputum, as practically all phthisis cases do before the end. Any case in which T.B. cannot be found in spite of marked physical signs in the chest should be looked upon with suspicion, and the diagnosis reconsidered. The writer is convinced that many cases of what Dr. Clive Riviere[1] so aptly labels "damaged lung" have been in the past, and still are, looked upon and treated as phthisis. Nevertheless, in spite of ideal conditions for the transmission of infection, it very seldom occurs, and Fishberg,[2] after a careful study of the subject, goes so far as to say it never takes place. He examined 9 women and 161 men. Out of this number there was only 3 per cent. of cases where husband and wife were tuberculous. On the other hand, Sir Hermann Weber[3] found in 68 persons, male and female, who, with more or less pronounced consumptive taint, had married healthy partners, that ten of the partners of these 68 cases became consumptive, or 14·7 per cent. Dr. Ward[4] in THE LANCET gives the results of his examination of husbands and wives of tuberculous patients, and out of a total of 156 examined (120 wives and 36 husbands) he found 91 to be tuberculous, the astonishing figure of 58 per cent. The above differences are rather difficult to explain.

As far as the writer can ascertain the greater part of the work on conjugal tuberculosis has been carried out with regard to "infection" rather than with regard to "death" of the partner. It is his opinion this is not the most satisfactory method of attacking the problem, as it leaves too much to the personal equation of the observer. What one clinician may consider a case of early infection may be rejected by another as not showing sufficient symptoms or physical signs to warrant a diagnosis of pulmonary tuberculosis. In the writer's opinion the most accurate information regarding the amount of phthisis amongst both married and single is to be obtained from death certificates, for in the closing phases of the disease the chance of error in diagnosis is reduced to a minimum, and for this inquiry death certificates alone have been used. The writer has investigated the 1242 deaths from phthisis which occurred in the borough of Northampton during the ten-year period 1911–20, with a view to ascertaining the frequency of conjugal tuberculosis, as compared with the findings of other observers—i.e., the frequency of death from phthisis of the spouse of a tuberculous person.

Historical Outline.

Dr. Tillische,[5] of the Grefsen Sanatorium, Norway, published in 1914 the result of his inquiries into the previous history of 841 patients, with a view to ascertaining in what per cent. of them clinical tuberculosis had existed in childhood. He found evidence of it in 156 cases, or 18·5 per cent. This figure agrees with the figure Dr. Harbitz arrived at during his work as a pathologist. Dr. Sophie Tillische[6] gave in *Tubercle* the result of her own investigations during the ten-year period 1911–20, the period embraced by the writer's examination into the deaths which occurred in the borough of Northampton certified as being due to pulmonary tuberculosis. Amongst the 3151 sanatorium patients examined by Dr. Tillische 1152 were married, and of these 85, or 7·4 per cent., were found whose consorts were also tuberculous. Thirteen of these 85 cases are excluded as being too doubtful to include amongst those of undoubted conjugal origin. There remained 72 cases, or 6·2 per cent. of the total, in which "tuberculosis can in all probability be assumed to have been conveyed from one partner to the other." Even in this group there are isolated cases not above suspicion—i.e., with a history of tuberculosis in the inner family circle. If these figures be accepted it shows that marriage with a consumptive does carry with it a certain amount of risk for the healthy partner, that risk being, roughly speaking, doubled. Amongst the 1152 married persons there were 94 widows and widowers. In 44 of these cases, or in 47 per cent., the consorts of these patients had died from tuberculosis.

These observations deal entirely with sanatorium patients, and no mention is made as to the presence or absence of T.B. in the sputum. Much stress cannot be laid on the information gleaned as to the presence of tuberculosis in both parents, which is usually very unreliable, and to be of any statistical value requires to be supported by written evidence.

Arnold Minning,[7] of Denver, U.S.A., investigated 1000 successive dispensary cases, of whom 502 were married, classifying none as tuberculous which were in the least doubtful. His conclusions are as follows: 1. He finds the incidence of marital tuberculosis to be 8·76 per cent., and when a consort dies the mate has been infected in 50 per cent. of cases. 2. There is such a thing as adult infection, and we should constantly bear this in mind in our advice to the layman. 3. It is evident that when there is a continued massive infection over a period of years, and especially when the consort dies (in these last years patients are especially careless and slovenly), there is not only a possibility of contagion, but in one out of every two cases active tuberculosis supervenes. 4. These investigations covered only dispensary cases. In private practice the incidence of marital infection is smaller, proving that intelligent prophylaxis is worth while.

Dr. Harry Lee Barnes,[8] of Wallum Lake, Rhode Island, gives in the *American Review of Tuberculosis* his experiences of 2262 married persons admitted to the Rhode Island State Sanatorium between Nov. 1st, 1905, and May 5th, 1921. Of these 62, or 2·7 per cent., claimed to have partners suffering from pulmonary tuberculosis. Barnes rightly states that statistics based on patients who have had consorts die from tuberculosis are more valuable, not only because plenty of time may elapse for the development of the disease, but also because death is something definite. Patients' statements that their consorts died from consumption, like the physicians' certificates on which they are usually based, are subject to occasional error, yet they probably minimise rather than exaggerate the number of cases of tuberculosis. Barnes draws two conclusions from his investigations: 1. The histories of 229 consecutive widowed patients admitted show that 40 per cent. lost their consorts from tuberculosis, a tuberculosis mortality over three times as great as that of the married people of the community. 2. Immunity from many diseases is short lived, and until much more convincing evidence of permanent immunity against tuberculosis conferred by infection during childhood is forthcoming, a cautious logic will not accept the confident statements that are being made as to the impossibility or rarity of adult infection.

Burney Yeo[9] collected records of 1055 cases of consumption which came under his notice in hospital. Of this number 621 were males and 434 were females. Of the males, 306 were married, 297 were single, and 18 were widowers. Of the 18 widowers only two, or about 11 per cent., could state positively they had lost their wives by consumption. Of the 434 females, 199 were married, 206 were single, and 29 were widows. Only five, or 17 per cent., were able to state positively that their husbands died from tuberculosis. In the writer's opinion these figures, whilst interesting, are not very reliable from a statistical point of view, representing only the statements of patients, and taking no account of other sources of infection or tuberculosis in the inner family circle.

Among 159 couples in which one of the partners was tuberculous, Brehmer[10] found that in 19 cases, or 12 per cent., both suffered from the same disease. Brehmer was dealing with "infection," not with "death," and much depends upon what evidence he based his findings. Haupt,[11] on investigating 417 cases, found 22 instances, or 5·2 per cent., in which both partners were affected by tuberculosis. Here, again, it is a question of "infection," not of "death." Cornet[12] found amongst 594 couples both partners were tuberculous in 23 per cent. of the instances. The same criticism may be offered as in Haupt's cases. Jacob and Pannwitz[13] collected information from a number of German sanatoriums, and found conjugal tuberculosis present in 8·57 per cent. of the cases. Weinberg[14] found amongst 1426 husbands of tuberculous wives that 118, or 8·3 per cent., died from tuberculosis, and amongst 2506 wives of tuberculous husbands 112, or 4·5 per cent., succumbed to the disease, or amongst 3932 consorts of tuberculous persons 230, or 5·9 per cent., died from tuberculosis. He finds the mortality from phthisis amongst those married to consumptives is about double that observed in the general population. It will be noted that Weinberg's observations embrace a large number of cases, and deal with death, not merely with infection. Ludwig Levi[15] investigated 317 married couples who lived in poverty and want; 34 shared the same bed. This group is one in which marital infection might be expected to reach its maximum, but he only found $2\frac{3}{8}$ of the disease was due to marital infection. Another study was made by Crouch,[16] of the Modern Woodmen Sanatorium, Colorado Springs, U.S.A., embracing 2771 married men and 233 widowers. Out of these 193, or 6·4 per cent., had wives who either showed a history of tuberculosis or who died from it. When he took the widowers he found that 136, or 58 per cent., lost their wives from tuberculosis. He concludes that 58 per cent. of tuberculosis amongst 233 widowers is more than a coincidence. The writer agrees that such a figure, if a correct one, points to more than a coincidence, but he would like to see the patients' statements supported by death certificates before accepting them.

More Recent Studies.

Dr. Paul Roussel,[17] assistant physician to the Sanatorium des Pins and the Villemin Dispensary at Nancy, has recently published a memoir on the subject. At the dispensary he found both husband and wife were tuberculous in 11·6 per cent. of 423 families investigated, and 25 per cent. of tubercle amongst the children of these families. These figures led him to conclude that in 11·6 per cent. of open pulmonary tuberculosis marital infection had occurred, and 37·5 per cent. of the children were affected. If *all* cases were included, the percentage of conjugal infection dropped to 5·2 per cent., and the infection rate for the children to 25 per cent. Dr. Roussel also makes the interesting observation that, as a rule, conjugal infection is milder than other infections, especially those of children, the difference being explained by a sur-infection in one case and a primo-infection in the other. An infection frequently repeated at short intervals seems to be the most dangerous. The danger of repeated infections at short intervals is what one would expect. The dose is repeated before the protective mechanism is properly established—i.e., during the negative phase, when for a time immunity is actually lowered.

One of the most recent and interesting communications on the frequency of conjugal tuberculosis was published by Dr. E. Ward[18] in The Lancet. After examining a large number of contacts Dr. Ward finds himself in marked disagreement with the generally accepted view that conjugal infection rarely if ever occurs, and his figures are of such a nature as to rule out the theory of assortive mating, or mere coincidence. He believes the important factor in the spread of tuberculosis is direct infection, not predisposition. In other words, it is the sowing of the seed, not its falling upon suitable ground which leads to fresh cases of the disease—i.e., to its spread. His figures are shown in tabular form.

Table showing the Result of Dr. Ward's Observations on Conjugal Tuberculosis.

—	Number exam.	Tub.	Suspect.	Negative.	Percentages.		
					Tub.	Suspect.	Negative.
Husbands: Wives first notified ..	120	66	12	42	55	10	35
Wives: Husbands first notified ..	36	25	4	7	69	11	20
Totals	156	91	16	49	58	10	32

It is Dr. Ward's opinion that the majority of the spouses of tuberculous husbands and wives sooner or later show signs or symptoms of tuberculosis. He makes a further interesting and far-reaching statement in which he says that not only do they develop consumption, but the great majority recover and make a speedier recovery than do tuberculous patients whose disease is not due to conjugal origin. This, he thinks, may be owing to an acquired immunity due to repeated infections by graduated doses of bacilli. He thinks the subject of conjugal or marital infection should be reconsidered in the light of recent findings, as upon a correct view of the subject, involving as it does the whole question of childhood or adult infection, depends the success of the present and future campaigns against tuberculosis.

Arent De Besche[19] and Jorgen Jorgensen have recently investigated this subject, using the statistical material of the City Board of Health of Kristiania. They found that in 11 cases (1·48 per cent.) it may be assumed that life in wedlock with a person suffering from infectious tuberculosis had been the prime factor in the development of their own tuberculosis. The authors conclude that a slight tuberculous infection during childhood very probably offers a considerable protection against tuberculosis in later life, the immunity thus acquired being, however, only relative, so that exogen infection during adult life will always be of some importance in the ætiology of tuberculosis. There is some risk connected with life in wedlock with an individual suffering from open infectious pulmonary tuberculosis.

The late Ernest G. Pope,[20] of the Adirondack Cottage Sanatorium, Saranac Lake, N.Y., was at the time of his death engaged on the problem of conjugal tuberculosis. The work has been completed and edited by Dr. Karl Pearson. As a result of investigation by modern statistical methods Pope arrived at the following conclusions: 1. It is possible that there is some sensible but slight infection between married couples. 2. That this is largely obscured or forestalled by infection from outside sources. 3. That liability to the infection depends upon the presence of the necessary diathesis. 4. That assortive mating probably accounts for at least two-thirds and infective action for not more than one-third of the whole correlation observed in these cases.

Ætiology and Pathogenesis.

When one considers the apparent facility for infection of the sound partner where the other is suffering from open phthisis the most remarkable feature of the problem is the number who escape, or at least do not die from the disease. It may be taken for granted that phthisis is infectious, and whether a mixed infection plays a large or small part in bringing about the fatal end, there is no doubt that the tubercle bacillus is the causative organism, and it is by repeated doses of this organism that the disease is produced. It is familiar to all that cough is generally a prominent feature of the disease, and it is chiefly by means of the cough that the source of infection is spread around the patient; the more violent the cough, the more widely is the infection scattered by the droplets of saliva and sputum thrown in the air with the paroxysm of coughing, especially as so few patients take the precaution of shielding the mouth with a handkerchief, &c. When we remember that the sound partner passes a large part of the day and often the whole night in close proximity to the sick one, it is difficult to see how he or she escapes.

The writer is convinced the risk of infection is slight even in those cases in which practically no precautions are taken to guard against it. The explanation is that by the time men and women have reached the marriageable age they have passed the age of greatest susceptibility, which the writer believes is during childhood. In no other way can he account for the few deaths of the partners of tuberculous persons where so many factors which would lower resistance and favour the onset are present, especially amongst the working class—e.g., anxiety, want of rest, and frequently want of food.

While some workers, Roussel and Ward, believe the most important factor in the production of marital infection is the sowing of the seed, Pope finds that two-thirds of the infection is due to the seed falling upon a suitable soil—i.e., to the tuberculous diathesis. That there is such a predisposition or diathesis is apparent from the number of persons of the same families included in the 1242 deaths investigated by the writer, viz.:—

	Instances.	
Brothers	33	Three families each lost three brothers.
Sisters	22	Four families each lost three sisters.
Father and son ..	13	Including one father and two sons.
Father and daughter ..	14	Includes three instances of father and two daughters and father, son, and three daughters.
Mother and son ..	7	In one instance, mother, son, his wife and child.
Mother and daughter ..	8	
Brother and sister ..	30	

The Northampton Figures.

When we come to consider the figures for the Borough of Northampton we find that 1242 deaths from phthisis were certified by medical practitioners during the ten-year period 1911–20, and when we examine the marital state of these 1242 persons we find them divided as follows: Married, 525; single, 562; widowed, 49; state unknown, 106. Amongst this number we only find 15 instances where both partners have been certified as having died from phthisis within the decennium under consideration, and from these 15 it is necessary to reject one couple owing to a history of tuberculosis in the inner family circle, rendering the source of infection too doubtful to be included amongst the cases of genuine marital infection. Out of the 1242 deaths from phthisis in Northampton in ten years, we can only find 14 couples of whom it may be said that one partner probably infected the other. As the number of deaths of married persons was 525, the 14 accepted cases give a figure of 2·7 per cent. There are several other instances where married couples have died from phthisis; but one of the spouses has died outside the ten-year period under consideration. If by extending the period under review these had been included, we would, of course, have obtained a larger number, but the total deaths from phthisis would also have been greater, and I see no reason for believing the percentage figure for married couples would have been increased.

Others who have made a study of marital tuberculosis with the percentages of contagiousness they have found in their investigations are given herewith. Elasser, 39 per cent.; Gebser, 5 per cent.; Joussert, 3 per cent.; Thom, 3 per cent.; Arent De Besche and Jorgen Jorgensen, 1·48 per cent.; Turban, 6 per cent.; Ludwig Levy, 2·8 per cent.; Ward, 58 per cent. It will be noticed there is a marked difference in the findings of these investigators, ranging from less than 1·5 per cent. to the astonishing figure of 58 per cent., but it must be remembered some of these workers dealt only with infection, a very doubtful quantity varying with the personal equation of the observer, whilst the figures for Northampton deal solely with deaths where errors of diagnosis are surely reduced to a minimum. Now, the figure 2·7 per cent. for the amount of contagiousness amongst the married couples in Northampton varies little from the generally accepted figure for the clinical tuberculosis rate for the general population.

Amongst the 14 accepted cases the husband was notified first in eight instances, and in the remaining six the wife was notified before the husband. The average period between notification of the husband and wife when the husband was notified first was approximately 25 months, but when the wife was notified before the husband it was 32 months.

Summary and Conclusions.

My investigations lead me to the following conclusions:—

1. Conjugal tuberculosis is rare.
2. The death-rate from phthisis of the spouses of tuberculous persons varies little from that for the general population of a corresponding age. The phthisis death-rate for Northampton 1911–20 was 1·4. For England and Wales during the same period it was 1·1.
3. Ideal conditions for infection exist, but infection rarely occurs owing to the age of greatest susceptibility having passed by the time the marriage age is reached.
4. My findings support the view that infection usually occurs during childhood, hence the advisability of protecting children whose parents are suffering from open phthisis. Upon these lines the Grancher system is founded, and is being worked successfully in France.
5. When conjugal infection does occur the disease usually runs a relatively short course.

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THE PREVENTION OF STILL-BIRTH.

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In papers dealing with obstetrical difficulties it is usual for the claims of the mother to be considered almost to the exclusion of those of the fœtus. While it is agreed that, in cases of danger to life, there should be no hesitation in sacrificing the fœtus in the interests of the mother, it appeared to the writer that it would not be out of place to consider the means most suitable for saving the life of the fœtus in cases where it might be in danger.

Causes of Still-birth.

Before considering the means of preventing still-birth, it is advisable to glance, for a moment, at its causes. Prenatal fœtal death is brought about usually by some condition which interferes with the placental circulation. The most common of these conditions are syphilis, toxæmia of pregnancy, nephritis, eclampsia, and retro-placental hæmorrhage. In such cases, if the dead fœtus is not expelled at once, it will be more or less macerated when born, and the placenta will probably show hæmorrhages or infarctions or, in syphilitic cases, will be large and pale. Intra-natal death occurs during the course of labour and is usually due to fœtal injury. The strain causing the injury falls mainly on the cranium, and the effect is, by compression of the head antero-posteriorly, to cause such vertical elongation that the tentorium is pulled on and is torn near its attachment to the falx, with hæmorrhage (Eardley Holland). In other cases intra-cerebral hæmorrhage occurs, sometimes, and especially in premature fœtuses, into the ventricles. Hæmorrhages, in some cases accompanied by rupture, are occasionally seen in the liver and suprarenals—less commonly in the other organs; rarely these hæmorrhages may be brought about by forcible pressure, more often they are due to vascular back pressure associated with asphyxia. Neonatal death, which occurs during the first few weeks of life, is often due to some cause acting during labour, e.g., dystocia, or even before the onset of labour such as syphilis, and it has to be considered along with the foregoing conditions.

Signs of Fœtal Distress.

The signs of fœtal distress *during labour* are slowing or quickening of the fœtal heart, the appearance of meconium when the presentation is other than breech, or the formation of a large caput. *After birth* the signs of distress are mainly respiratory. Thus the child may never breathe, and yet the heart beat for half an hour or more; again, respiration may be established but not satisfactorily, and fail in a few hours. In this class of case some intracranial injury is usually found. In a third type of case respiration may be apparently satisfactorily established and then fail gradually or even suddenly in a day or two, and in these cases hæmorrhagic pneumonia is often found post mortem.

Antenatal Examination and Care.

By proper antenatal examination much may be learned and efficient treatment established. From the *physical aspect* contracted pelvis, post-maturity, and malpresentation of the fœtus are the most important points to be guarded against. Early in pregnancy a full pelvic examination should be made, and the external and internal measurements carefully noted. This should include a careful measurement of the diameters of the pelvic outlet as in a number of cases unsuspected contraction may be present here, and may be the cause of complete perineal laceration (Blair Bell), the head having to pass entirely behind the ischial tuberosities. At the thirty-sixth and again, if necessary, at the thirty-eighth week the relationship between the fœtal head and maternal pelvis should be ascertained; this is done most accurately by the Munro Kerr method. If the disproportion be such that it is thought impossible for the head to come through the pelvis, Cæsarean section can be arranged for about term; if the disproportion be only slight, the patient or her friends should be warned that labour is likely to be prolonged and that instruments may be required. If the disproportion be of a medium degree, the best line of treatment is to induce premature labour just when the head can be engaged in the pelvis with slight difficulty, as estimated by the Munro Kerr method. It is of little avail to induce before the thirty-sixth week, as the chances of the child surviving are but slight: the later in pregnancy it can be delayed the better the outlook for the child. A breech presentation should be left alone until the eighth month when external cephalic version should be performed. Often anæsthesia is required for the satisfactory performance of this operation, and the head should then be pushed well down into the pelvis and an attempt made to keep the fœtus in its new position by applying a thick pad on each side of the head on the lower abdomen and fixing a tight binder round. If performed before the eighth month the malposition is likely to reappear as the fœtus is then liable to float round in the relatively abundant liquor amnii. In the rare cases where a face presentation is diagnosed before labour a determined attempt should be made by manipulation to flex the head and convert it into a vertex. If an occipito-posterior position be found it is an open question whether anything should be done at this stage. The great majority of these cases undergo long rotation spontaneously so that the occiput comes to lie anteriorly during labour. Before the onset of labour the best method of treatment is the two-towel method of Buist. The late J. W. Ballantyne reported considerable success with this manœuvre of prophylactic rectification and also with prophylactic version in breech cases. Post-maturity, accompanied as it is by enlargement and excessive ossification of the fœtal head, constitutes a grave risk to fœtal life in the same way as contracted pelvis. When the date of parturition has been carefully determined from the date of the last menses and of quickening, pregnancy should not be allowed to go on beyond 48 hours of that date in a primigravida or seven days in a multipara. Labour is most easily induced in these cases by the castor oil, quinine, and pituitary method of B. P. Watson, who records 95 per cent. of successes. Only rarely does a bougie require to be introduced, and then under strictly aseptic conditions.

Certain *toxæmic states* may also be diagnosed and treated during pregnancy. Syphilis in the mother during pregnancy should be treated as soon as diagnosed, irrespective of the period of gestation. Adams recommends intravenous injections of 20 cg. galyl, or a proportionate dose of novarsenobillon, increasing the dose to 30 cg. Intramuscular injections of mercury gr. 1 in emulsion are given at the same time. At birth a specimen of fœtal blood should be taken from the umbilical cord and a Wassermann test performed, and this test is to be repeated at six-weekly intervals on blood pricked from the heel.

Treatment of the infant is begun during the first week and consists of intramuscular injections of galyl, 2 cg. in glucose, repeated fortnightly, the dose being increased in time to 5 cg. Mercury gr. ¼ should be injected into the buttock and repeated weekly and, when two or three weeks old, hydrarg. c. cret., gr. ½, is given daily by the mouth. This treatment is to be continued until the Wassermann is negative, and is to be repeated if it subsequently again becomes positive. In the toxæmias of pregnancy treatment should be started when albuminuria is first noticed. If the patient comes under treatment only when the condition is advanced, the fœtus has probably already perished. Hence the important point is to get the patient under treatment early, and this can be done only if the urine and the general condition are examined at monthly intervals during pregnancy, and if she be told to report at once on the occurrence of headache, sickness, œdema, interference with vision, or hæmorrhage. She should at once be put to bed between blankets and surrounded by hot-water bottles; this diminishes metabolism and produces diaphoresis. The diet should be cut down relentlessly and if necessary reduced to water and imperial drink, milk being added later, and then fish, chicken, and meat as the condition improves. Eggs are to be prohibited throughout pregnancy. Magnesium sulphate should be given as required; it not only clears out the bowel, but also removes a large amount of toxin-laden fluid, and is very valuable in this respect. The action of the skin will usually be sufficiently stimulated by the blanket, hot-water bottles, and imperial drink. It is to be repeated, however, that fœtal life can be saved only if the case be treated in an early stage and if the patient be put under rigid supervision for the remainder of pregnancy. It is in cases of this nature that antenatal observation and treatment reach a high sphere of usefulness.

Prevention of Fœtal Death during Labour.

During labour much may be done to conserve fœtal life. While antenatal care and treatment are of the first importance in this respect, there is rather a tendency at present to forget that the most efficient antenatal observation and treatment will fail unless followed by equally efficient treatment during parturition. In this connexion Eardley Holland found that 60 per cent. of still-born fœtuses died *during* labour, while in a series of cases examined by the writer it was found that 71 per cent. had died under similar conditions.

During labour the factors to be considered are almost entirely mechanical and resolve themselves into two groups: (1) where there is some disproportion between the maternal bony pelvis and the fœtal head, and (2) where some fœtal malpresentation exists.

1. If the disproportion be extreme, as with a severely contracted pelvis, Cæsarean section should be performed if the patient be early in labour and if the conditions as regards sepsis are satisfactory. If the disproportion be only slight, probably forceps will be successful. But they should be applied only after sufficient time has been given for the head to mould to the maximum, and they are to be pulled on as gently as possible and screwed together just tightly enough to grip the head. If haste be avoided a fair proportion of these cases will be born spontaneously, and while it must be admitted that there is a definite risk to fœtal life in a prolonged labour terminated spontaneously, such risk is considerably increased by the application of forceps. Where the disproportion is moderate the difficulty is greatest, and in this class of case the widest choice of method —pubiotomy, forceps, Cæsarean section, and even symphysiotomy—is offered. Looking at the matter from the point of view of fœtal life, the best methods of delivery are the induction of premature labour under the conditions previously mentioned, Cæsarean section or pubiotomy, but for any of these to be of the fullest benefit the patient should have been under antenatal observation. It is of the first importance to see such a case as early as possible in labour. If seen early and before much examination and with the membranes intact Cæsarean section may be performed with safety to mother and child, while if she has been in labour several days it may be that craniotomy will be the only possible treatment.

2. In occipito-posterior presentations plenty of time is to be given, as we know that spontaneous long rotation occurs in the majority of these cases, and it is only when the posterior position is persistent that treatment is indicated. It must be remembered that turning the head alone is bound to fail, as this results merely in the twisting of the neck, and when the hand is removed the head slips back at once. Two methods are available: in one the head is rotated through a quarter or half a circle with the fingers of one hand

in the vagina, while the other hand grasps the anterior shoulder through the abdominal wall and rotates it in the same direction at the same time. The other method, devised by the late Lamond Lackie, consists of displacing the presenting part and inserting two fingers along one side of the head and behind the anterior shoulder, which is then rotated, usually easily, through a quarter or half a circle. The head usually follows easily and remains in its anterior position. Labour may then be allowed to go on spontaneously or be terminated by forceps delivery. Breech presentations, when seen first in labour, present many difficulties. The high proportion of still-births in these cases is brought about not so much by prolapse of the cord and pressure on the placenta, or even by premature efforts at inspiration, as by the pressure of the maternal soft parts on the after-coming fœtal head causing tentorial laceration and hæmorrhage as described above.

The points to be emphasised in the conduct of a breech case are (1) to keep up flexion of the head; (2) to avoid haste in delivery; and (3) to keep the exposed parts covered with a warm towel. Flexion is maintained best of all by suprapubic pressure, and this should never be relaxed after the buttocks are born. The best way to produce extension of head or arms or both is to pull on the legs in an attempt to complete delivery rapidly. Again, should the after-coming head be held up, it is justifiable to wait up to 20 minutes (Holland) for delivery rather than to deliver by one of the grips. During this period it is very necessary to ensure that the parts of the fœtus already born are covered by warm towels to prevent premature respiration. Only with this precaution attended to is it justifiable to wait longer than the few minutes usually recommended. Thus any delay in the birth of the after-coming head places us in a dilemma. If birth be hastened, intracranial injury is likely to be caused, and if an expectant attitude be adopted, premature inspiration may cause the fœtal air passages to become filled with vaginal mucus.

Probably a middle course is the best. The head is not to be rapidly extracted for fear of causing intracranial trauma, but up to 15 minutes may be allowed for spontaneous expulsion with firm suprapubic pressure. After that period the interference with placental circulation is likely of itself to stimulate respiration in the fœtus, and further delay should not be allowed. This is obviously a point of prime importance, and necessitates a considerable alteration in our ideas regarding the management of breech cases. Since rapid extraction of the after-coming head predisposes strongly to the production of tentorial laceration and hæmorrhage, the teaching in most of the text-books recommending extraction within a few minutes of the birth of the breech would appear to require modification in the direction indicated.

Ante-partum hæmorrhage and eclampsia are frequently associated with still-birth, but in these conditions the risk to the mother is so great that it does not appear justifiable to consider any measures except those in the maternal interest.

Asphyxia is the clinical condition usually associated with still-birth, and it is appropriate to consider here the effect of artificial respiration. Blue asphyxia is mostly due to lack of blood aeration, and seldom fails to respond to clearing of the air passages and gentle artificial respiration. White asphyxia is usually associated with cerebral injury due to intracranial hæmorrhage, and, with the best intentions, energetic artificial respiration is apt to be practised, especially if the heart is still beating. It is evident from what has been said that the only effect of such manipulation will be to tend to a further increase of the hæmorrhage, and so the last chance of life may be lost. In these cases, after clearing the air-passages, the fœtus should be wrapped up warmly and left absolutely at rest.

While the claims of the fœtus have been the primary consideration in this communication, in no case have the interests of the mother been prejudiced by any procedure recommended. Indeed, it can be said in general that what has been urged for the benefit of the fœtus is also for the benefit of the mother.

It is estimated that, on account of congenital defect, ante-partum hæmorrhage and similar conditions, 1 per cent. of still-birth is unavoidable. This is probably correct, and our duty lies in attempting, by all the means at our disposal, to prevent the occurrence of still-births in any individual case in which it is preventable.

FEMORAL HERNIA.

OPERATIVE TREATMENT BY ROUX'S METHOD.

BY FRANK HARVEY, F.R.C.S. EDIN.

THE radical cure of femoral hernia presents considerably more difficulties than that of the inguinal variety, owing to the difficulty in closing the crural canal satisfactorily. This is due to: (1) The rigidity of the internal and inferior boundaries of the crural canal, (2) the presence of the femoral vessels on the outer side of the canal. The question of whether femoral herniæ are congenital is disputed.

Sir Arthur Keith,[1] in his Mitchell Banks lecture on Nov. 1st, 1923, states that "at no point of the development of man or beast does an invagination of the peritoneum take place at the femoral ring." Hamilton Russell [2] (Melbourne) in 1902 and again in 1923,[2] propounded the saccular theory of hernia. He states that R. W. Murray [3] examined 100 bodies and found sacs in surprising numbers. My experience tends to prove that femoral hernia is not of congenital origin.

My series show 51 cases of adults, and only one in a child 5 years of age. These cases have all reported within a period of three months after the appearance of the swelling. This is contrary to my experience in inguinal herniæ where a large proportion of cases are known to have existed since birth.

Femoral hernia occurs more frequently, according to statistics, in women than in men, and rarely in children. Here my series of cases is in contradiction to the above statement, men having formed 28 of the cases and women 24. This variation may be explained by the fact that these men were engaged in heavy manual labour.

A great many varieties of operation have been devised for the radical cure of femoral hernia, but having tried many of the methods devised I have found that the results given by Roux's operation are by far the most satisfactory.

Fifty-two Cases of Roux's Operation.

In my series of 52 cases in which Roux's operation was performed, covering a period of 15 years (1905–20), 28 were males and 24 females. The youngest patient was a girl aged 5 and the oldest a woman aged 72. Forty-six cases have been traced and have replied stating that the hernia has not recurred, and pain is not complained of.

Technique of the Operation.

Roux's operation is a very simple one and is quickly performed. An incision is made parallel to the inner half of Poupart's ligament and along its lower border. The lower part of the incision is retracted so that the femoral canal is exposed. The sac is defined and opened. Omentum is often present and will usually be found to be adherent. All adhesions are freed, and it is frequently necessary to ligature and remove redundant omentum before returning it to the peritoneal cavity. Bowel, if present, is carefully examined where it has been in contact with the neck of the sac before it is returned into the abdominal cavity. The sac is pulled down with moderate tension, twisted to obliterate its lumen, and ligatured high up, the redundant portion being excised. A rectangular staple, which is made in various sizes, is now taken, and the points passed through the inner portion of Poupart's ligament. The inner limb of the staple passes just internal to the crescentic border of Gimbernat's ligament and the outer limb immediately internal to the common femoral vein. The staple is pressed firmly into the horizontal ramus of the pubic bone.

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[1] Sir Arthur Keith: Brit. Jour. Surg., 1924, i., 469.

[2] R. Hamilton Russell: THE LANCET, 1902, i., 1519; Brit. Jour. Surg., 1923, xi., 150.

[3] R. W. Murray: THE LANCET, 1906, i., 363.

Roux's punch is now placed on the staple, which is gently hammered into the bone until the crural ring is obliterated. Care must be taken not to drive the staple in too tightly, or Poupart's ligament will be torn. The external wound is then closed with silkworm-gut sutures. Roux's punch is 5 inches long and has a groove in its lower end into which the staple loosely fits. Of the 46 cases, which I have traced, one (No. 38) recurred in six months. I removed the staple, and introduced a fresh one. There has been no recurrence, the patient having since worked as a coal-miner.

Conclusions.

I consider the following conclusions can be drawn from my experience of these 52 cases.

1. That Roux's operation is a simple and efficient one, and can be performed more quickly than any other operation for femoral hernia.
2. That the staple does not tend, in my experience, to become loose, and does not give rise to pain.
3. That right femoral hernia is more common than left. In my series of 52 cases, 37 were on the right and only 15 on the left side.
4. That the commonest type of femoral hernia is an epiplocele.

Queen Anne-street, W.

Clinical and Laboratory Notes.

AVULSION OF THE ANTERIOR SUPERIOR ILIAC SPINE TREATED BY OPERATION.

By A. G. ORD, F.R.C.S. EDIN.,
HON. ASSISTANT SURGEON, ROYAL PORTSMOUTH HOSPITAL.

THE cases of this injury here recorded are somewhat uncommon. Operative measures appear to offer by far the best hope of an early return to full activity and are, I think, quite justified in view of the surprising amount of disability the injury causes.

A boy of 17 was admitted with a history of limping and pain in the right thigh following on kicking a football hard with his right foot, and swinging round on his left leg.

Condition on Examination.—It was observed that there was some swelling but little bruising in the region of the anterior superior iliac spine. The limb lay in a position of slight flexion and internal rotation. There was no true shortening, and only slight limitation of voluntary movement at the right hip-joint in the directions of extension and external rotation. About 1 inch to 1½ inches below the iliac crest a lump about the size of a Kentish cob-nut could be felt, which was movable. Crepitus was easily elicited. A diagnosis of avulsion of the anterior superior iliac spine was made and confirmed by X rays.

Operation.—A U-shaped skin-flap was made of some 3 square inches in area over the swelling, and the fascia lata split longitudinally. The bony fragment was mobilised and approximated to the ilium by flexing the thigh. The periosteum was sewn together with catgut, and a doubly transfixed ligature of the same material around the whole gave additional security. The wound was closed in layers in the usual manner.

The patient was returned to bed with his thigh flexed, and it was only gradually extended, so that a position of full extension was obtained only on the ninth day, when the stitches were removed and the patient discharged. He was instructed to walk as much as he liked, but not run or kick. He came back to report in nine days, when firm union appeared to be established, and he was permitted to resume football, &c., and has had no further trouble.

Precisely similar details are found in another case of a boy of 17, but he was left-footed, and the injury was transposed to the opposite side. The same result was obtained by the same methods and in the same time. Subsequently, however, a case came to my notice which I have no doubt was originally one of avulsion of the iliac spine, which had been treated by strapping and recumbency. Although it was some seven or eight weeks after the injury when I first saw the case, yet there was still sufficient pain on extension and external rotation to prevent the boy recommencing his football activities. There was a mass the size of a hen's egg in the region of the spine, indicating excessive callus formation. It is certainly doubtful if he will play again this year, for the callus is soft, and may possibly be pressing on nerves.

It is a little difficult to explain the exact mechanism of the above injury. It would seem to be due to overaction of the sartorius when the thigh is semiflexed, adducted, and internally rotated, although it is surprising that such a comparatively weak muscle should be able to separate the epiphysis in this manner. Certainly the exact similitude of all three histories and the total absence of any direct injury support this hypothesis, but there must be other factors, for otherwise the injury would surely be a great deal more common.

TWO CASES OF SARCOMA IN CHILDREN.

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THE following two cases of sarcoma seen in this hospital may be of interest :—

CASE 1.—A mother brought her boy, aged 4½, to hospital in March, 1924, saying that she had noticed discharge from his left ear for the last 12 months. He never complained of pain. Two polypi were found in the ear and removed with a snare. Peroxide drops and boric lotion were given for the treatment of the otitis media. The child did not come up again until the following June. On examination he was then found to be suffering from acute mastoiditis.

Operation.—The middle ear, antrum, and upper portion of the mastoid were found to contain pus and a polypoid fleshy mass, the whole of which was removed together with surrounding bone. On section the neoplasm proved to be a myxosarcoma. Radium treatment was given over a period of a week. Five weeks later a small swelling appeared below the site of operation, and gradually increased in size. The child showed signs of increased intracranial pressure. As the tumour increased, the lower jaw was pushed towards the opposite side and the left eye destroyed. The child died in October, with a tumour half the size of his head. It was not possible to obtain a post-mortem examination.

CASE 2.—A girl, aged 8, was sent in by the school authorities. The child said she had knocked her left cheek on the desk at school three weeks before. After this a small swelling appeared on the cheek and gradually increased in size. On examination a hard rounded swelling about 1¼ inches in diameter was found attached to the left malar bone immediately below the infra-orbital margin. The skin was freely movable over the swelling, but there was a mucocele caused by pressure on the lacrymal duct.

Operation.—A very vascular tumour was removed, and this proved to be an osteosarcoma on section.

Although a small swelling has recurred, radium treatment appears to be checking advance of the growth, as it is now six months since the operation.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

A MEETING of this section was held on Dec. 3rd, under the presidency of Mr. HERBERT J. PATERSON.

Diagnosis of Malignant Disease of the Thyroid Gland.

Mr. JAMES BERRY initiated a discussion on this subject. He intimated his intention to deal with it in a general way, chiefly from the clinical aspect, relating cases which were chosen because of the difficulties in diagnosis which they presented. Fortunately, malignant disease of the thyroid was not a very common occurrence. There were many difficulties in the way of a correct diagnosis of it. Some had allowed a malignant goitre, under the supposition that it was harmless, to grow to a considerable size before seeking medical advice; and in other cases a patient would be treated for months with iodine or with thyroid preparations without the suspicion having been entertained that the condition was other than an ordinary goitre. That was especially likely in districts where goitre was common; the practitioner was so familiar with ordinary goitre that he was apt to overlook the rarer and more serious disease when it occurred. One reason for this was that most malignant thyroid tumours caused no symptoms beyond the discomfort due to a growing lump in the neck. Alterations in health occurred only when the disease had reached an advanced—often an inoperable—stage. Pain, dysphagia, and dysphonia were, usually, quite late accompaniments—namely, after the growth had penetrated the capsule and when it had begun to affect the surrounding structures. These signs and symptoms might occur in the case of tumours of the gland which were not malignant—namely, those of inflammatory nature. In many cases, n the speaker's opinion, it was impossible to arrive at a certain diagnosis before operation. Malignancy might attack a goitrous tumour previously benign.

Thyroid tumours might have a wide area of contact with the trachea, and with the latter the thyroid capsule became quickly incorporated and so restricted movements. He pointed out that malignant goitre could not be moved on the trachea, as could innocent goitre unless definitely inflamed. The thyroid was n close relation with the recurrent laryngeal nerve and with the pharynx, hence the importance of paralysis of the vocal cords and dysphagia. These signs might occur when the tumour was but small if the disease began at the posterior part of the gland. Such cases usually, because of their symptoms, came irst to the laryngologist rather than to the general surgeon. The latter saw first the cases in which the disease formed a tumour on the front aspect.

An important factor in the diagnosis was the displacement of the carotid vessels; the malignant disease did not usually displace them to the same extent as did innocent goitre. When the malignant disease began in the anterior part of the gland and he tumour could grow forward, away from the recurrent laryngeal nerve and larynx, the patient was likely to be spared distressing symptoms. For hat reason it was possible that the malignant tumour might be allowed to attain a considerable size before medical or surgical advice was sought. In one case of the kind he dealt with, the tumour weighed 16 oz., and six months after the operation the patient died of recurrence of the disease.

The commonest degenerations of ordinary goitres were fibrosis and calcification. The statement had ecently been made in America that adenomata of he thyroid having a fibrous star-shaped centre were apt to become malignant, but Mr. Berry definitely dissented from that view. In his own series of 373 cases from which he had removed solid (not cystic) adenomata, only three or four eventually became malignant. These ordinary tumours should not be removed unless there was some definite reason for it, such as the production of pressure symptoms. Both fibrosis and calcification caused the occurrence of hard masses within the goitre, in this way enhancing the diagnostic difficulties already sufficiently great. Clinical histories were very misleading. A calcified thyroid tumour might exist for years without the patient being aware of it, especially if it lay behind the clavicle or the sternum.

The presence of a recently noticed hard lump in the thyroid region in middle age or later should always arouse the suspicion of malignancy, even in the absence of any other sign, though most such hard tumours were not malignant. Careful palpation helped greatly in the differentiation. Hæmorrhage was very common in thyroid tumours, but this was no indication of malignancy; indeed, among many cases of cystic adenoma and others in which bleeding occurred he had never seen any considerable spontaneous hæmorrhage within a malignant thyroid tumour. It was seldom that patients with innocent goitre complained of difficulties in swallowing; even when the pharynx and œsophagus were displaced it rarely was a permanent occurrence. But in malignant disease of this part, when the disease began at the back, dysphagia was often an early and important sign. Error was here also possible, however.

Mr. Berry said one of his main objects in bringing forward the subject was to draw attention again to the class of innocent thyroid swelling, which was frequently mistaken for malignant tumour. In the present day, when operations for thyroid disease were becoming increasingly safe and easy, there was a danger lest severe operations should be needlessly undertaken. He stated very definitely that removal of the whole thyroid gland should never be carried out, even for carcinoma of it. He had himself never done so, nor felt that he ought to have done it. He laid special emphasis on the fact that in the innocent variety of tumour there was nearly always present in the patient a waxy pallor, which indicated commencing atrophy. It was the beginning of what was seen more markedly in advanced myxœdema. This waxy pallor was practically always absent from the patient who had true malignant disease at that early stage before the growth had penetrated the capsule. He had been many times impressed by the apparent general well-being of patients who were suffering from even advanced and extensive malignant disease.

Around the hall were a large number of photographic enlargements of micro-photographs of different varieties of thyroid growth, and for several hours there had been on view many actual specimens from the Royal Free Hospital, which had been arranged by the pathologist to that institution, Dr. G. S. Williamson.

Discussion.

Mr. WILFRED TROTTER said that, to the practical surgeon, the subject divided itself into two groups: (1) The diagnosis of the nature of the condition being dealt with; (2) the diagnosis of the operability of the given tumour. Under the first of these he referred to carcinoma of the cervical œsophagus invading the thyroid gland. This presented a remarkably stable and constant clinical picture, and was very common. In its early stage it was essentially operable, but usually it was met with in a very misleading form. In most cases the first symptom was paralysis of a vocal cord, and the patient would at this stage deny that anything else was wrong. He showed sections illustrating how in a case of the kind the disease had come through from the œsophagus into the thyroid body, enlargement of which was the second symptom in this disease.

With regard to the diagnosis of operability, the task of diagnosis in connexion with malignant disease of the thyroid was not completed with the beginning of the operation. Diagnosis continued throughout the operation, the important matter being whether there was justification for continuing the operation. In his view malignant disease of the thyroid was not attacked with sufficient enterprise, and minor conditions encountered during the operation should not be too readily accepted as determining the diagnosis of inoperability. A further point in this matter of operability was the question of early recurrence. He had a patient with a papilliferous thyroid, which was operated upon as a benign tumour. Within six weeks recurrence took place, and it was somewhat firmly fixed to the tracheal wall, from which it had to be cut away. For fully ten years there had been no further recurrence. Kocher stated that cases of malignant disease in which the capsule of the thyroid was penetrated and in which glandular involvement occurred were very unfavourable. But the speaker had dealt with a youngish woman in whom there was a string of carcinomatous glands along the neck, and a mass in the right lobe of the thyroid, which at the operation was seen to have penetrated the capsule in several places. That was excised, and a systematic gland operation carried out, and the patient had remained free from recurrence to the present time, a period of 17 years.

Mr. A. J. **Walton** said no definite statement could be made which would be applicable to all varieties of thyroid tumour. He did not think a pathological classification was possible. He had had 13 cases which had been diagnosed as carcinoma in a series of 402 patients operated upon, or 3·2 per cent. malignant. If groups of cases seen in the out-patient department were included, the percentage would be reduced to 1·6. In goitrous districts the frequency of malignant disease of this gland was a little less than in non-goitrous regions. Usually it came on at about middle age; his youngest patient was a male aged 21, and his oldest a woman aged 79. Carcinoma might be present secondary to adenoma, and in these cases hyperthyroidism was an early symptom. There might be a cellular overgrowth within the capsule for a long time before the carcinomatous stage was evident. The only safe course was to remove them because of their liability to malignancy. Three symptoms, especially if combined, could be regarded as evidence of malignancy: (1) rapid growth, (2) irregularity of the surface of the tumour, and (3) its hardness. He made an important exception in the case of changes occurring in the gland in the course of pregnancy. No operation for goitre should be done on a pregnant woman unless there was some grave reason for it. Many thyroid changes ceased with the termination of labour. A suspicious sign of early malignancy was a radiating pain passing towards the ear; and stress should also be laid on the adherence of the tumour to the trachea.

Mr. T. P. **Dunhill** said that since he came to London from Australia he had operated upon 350 cases of goitre. These could be classed into three groups. In the first of them there was no doubt about the diagnosis when the patient was seen; there were lumps, usually irregular, sometimes involving the skin, sometimes the skin could be moved freely over them in parts. In some parts the tumour could be seen to fade away into surrounding tissues, and there was difficulty in breathing, perhaps in swallowing too, and the voice might be altered. In the face of such cases the surgeon felt helpless. In the second of his groups the nature of the case was not so obvious; the swelling was asymmetrical and less hard than in Group 1. The edges were fairly defined, and the breathing difficulty was greater than would have been suspected. The aid of the radiologist showed masses in the mediastinum. But even when such cases were felt to be malignant the patient should not be given the idea that nothing could be done for him. Sometimes the bulk of the tumour could be removed, and then the patient placed where he could receive skilled deep radiotherapy. In the third group he thought a correct diagnosis could only be arrived at with the aid of the pathologist. Five of his 350 cases had malignant adenomata. He urged a close working association between surgeon and radiologist, and a freer removal of early doubtful tumours, to avoid the risk of allowing a malignant growth in this region to develop unchecked.

Dr. G. W. **Nicholson** entered with some detail into a discussion of the pathology of the kind of cases under consideration. He thought tumours which were malignant in a portion only should be called parathyroid growths, though without implying that they arose in the parathyroid. It was safer to regard them always as malignant. He considered it impossible to diagnose malignant adenomata. He had seen three cases of squamous-celled carcinoma in which the growth probably originated in the thyroid gland. Two had keratinised freely.

Mr. **Zachary Cope** commented on the lack of exact knowledge in regard to the operability of these tumours, except in the case of the obviously hopeless ones, and here knowledge was not of much value. He narrated a case in a boy aged 10, in regard to whom the lump in the right lobe of the thyroid—which was removed—was reported to be "not typically malignant." But there were four recurrences, and the boy died. Surely four recurrences argued a very definite malignancy.

SECTION OF ORTHOPÆDICS.

A meeting of this section was held on Dec. 2nd, Mr. H. A. T. **Fairbank**, the President, being in the chair.

Mr. P. **Jenner Verrall** opened a discussion on

Sacro-iliac Disease.

He said that of the many branches of orthopædic surgery still imperfectly understood, the sacro-iliac joint was not the least important. When one considered that all the weight of the superincumbent body was borne on these joints and that they were all the time subjected to a shearing strain, and that the advantages of a bony ankylosis had been sacrificed to the needs of parturition and the necessity for shock absorption, one might well expect to find frequent disabilities in this region. Whatever the disorder of the joint the same clinical picture was presented—viz., a characteristic stance and gait, designed to spare the affected joint, with a tilting up of the pelvis on the bad side; the gait was especially striking in going upstairs, when the patient very carefully selects a painless position on the bad side, then swiftly swings the good leg on to the next stair and passes the weight to it; this procedure was in marked contrast to the process in hip conditions where the joint is painful in all positions. The history was usually vague, the onset being insidious, unless the pain followed pregnancy or some stooping strain. A very characteristic complaint was that of marked instability, the sensation of "falling to pieces." Since the joint was supplied by all the nerves near it, pain might be referred in many directions; the pain was increased by standing and walking, and especially by any sudden jar and by going upstairs. The condition produced a high degree of neurasthenia, with exaggeration of all symptoms, and in order to make a diagnosis it was necessary for the essential signs to be found. These included swelling, and possible abscess, over the joint, in the abdomen, the buttock, iliacus muscle, and pelvis; deep tenderness over the joint, to be distinguished from superficial tenderness referred from abdominal or pelvic lesions; the latter was usually rather lower down, being conveyed by the third sacral nerve. A conclusive test was the production of pain in the joint by prolonged compression, either of the crests or of the pubes. Hip movements were normal when the knee was flexed, but with an extended knee there was pain when the hamstrings began to tilt the pelvis. There was rigidity in the lumbar spine, but no true psoas spasm. The differential diagnosis must consider, firstly, strains in muscles and ligaments, which were common, and which did not produce the characteristic gait or the feeling of instability; and, secondly, the constant pitfall of referred pain. X rays did not materially help, as the joint was too tortuous for the antero-posterior view to show minor displacements.

The commonest form of affection was the toxic, due to chill, minor injury, or of insidious onset. Other joints were usually affected at the same time, as also was the case when the gonococcus is the causative organism. Tuberculosis of this joint was rare, severe, and fatal; abscess formation was very common, and might be the first indication of the disease. A condition of undue laxity of the articulation was not uncommon; it might be congenital, but more often followed repeated strain, or parturition. The restoration of this joint proceeded pari passu with the involution of the uterus, and might fail if the upright position was resumed too soon. Abnormal strain was also thrown on the joint by such things as a stiff hip or spine, traumata, or habitual bad stance. The acute case usually resulted from a bending strain, the upper end of the sacrum being forced backwards on the ilia; in chronic cases the sacrum tended to slip downwards and forwards. The treatment was operative, manipulative, or conservative. A severe arthritis demanded long immobilisation, from lumbar spine to hip, in a Thomas frame or plaster, with or without internal splinting. Mr. Verrall demonstrated a case showing excellent results from sliding a bone-graft right across under the erector spinæ from one posterior superior spine to the other; the bone might be taken from the tibia or ilium. The manipulation he preferred was that of full flexion, with subsequent support by some form of brace or elastic corset.

Treatment by Support.

Mr. J. B. **Mennell** expressed his gratification at finding sacro-iliac disease recognised by this Section; the majority of the cases were seen by physicians and diagnosed as sciatica, lumbago, neuritis, or chronic rheumatism. He showed a number of external supports of the type which he preferred, consisting of a large oblong back plate and a short, broad anterior plate, prolonged so that its ends lay just below the anterior superior spines, with three straps passing round from the front to the back and ending in front again; the highest strap was round the lower ribs, in order to get the top of the back plate above the lordotic curve, the middle one round the lumbar spine, and the third round the ilia. The breadth of the back plate depended on the nature of the strain; if there was forward torsion it was narrow to fit between the posterior superior spines, while the anterior plate pushed the sacrum backwards; if backward torsion was present the back plate was broadened. Referring to the puerperium, he suggested that more danger lay in sitting up in bed with an unsupported lumbar spine than in resuming the erect position too early, and advocated the old maternity binder, from waist to mid-thigh, as a support. He stressed the importance of examining the anterior aspect of the joint, as the sacro-iliac spot was close to McBurney's and confusion was liable to be made between them.

Treatment by Manipulation.

Dr. **Edgar Cyriax** maintained that subluxations of this joint were exceedingly common, as shown by a slight asymmetry of the bony points. He treated his cases by the usual method for subluxations—reposition by manipulation, a process which was painless, simple, and effective. Occasionally it required to be repeated, but in most cases one manipulation was sufficient and no after-treatment was required. Out of some 1500 cases he had only had half a dozen failures.

Mr. H. B. **Roth** described the manipulation he was accustomed to perform: he followed this up by strapping round the pelvis below the anterior superior spines, left on as long and as tightly as the patient could bear. Except in very severe cases requiring prolonged rest or operation, he obtained cure by this method in three to four weeks. He believed that the clinical picture of true sacro-iliac disease always began with sudden strain, never insidiously, and the patient, if asked to point to the site of the pain, would always put his thumb precisely over the joint.

Mr. R. C. **Elmslie** commented on the diversity of opinion as to the prognosis of the condition and considered that no real standard of diagnosis had yet been reached. He preferred to keep the term "lower backache," with which everyone was familiar, until a better one was found. There seemed no doubt that of this complaint there were many different causes, and some were cured by manipulation, some by support. He had found the painful spot very variable—over the crest, the erector spinæ, the lumbar or gluteal muscles, the side of the coccyx, &c., that over the sacro-iliac joint being rare. He submitted that there was no proof that the manipulations described had special action on the sacro-iliac joint; they might do many things with the lumbar and gluteal muscles. He quoted a case where a very obstinate pain of this nature had been cured by the processes of operatic dancing. He pointed out a characteristic flattening of the sacrum which accompanied the tilting of the spine.

Mr. G. R. **Girdlestone** described a case of prolonged and serious pain in which the insertion of a wedge-shaped piece of bone in the joint had failed to produce bony union owing to the rarefaction of bone which was practically always found in chronic cases. He had therefore repeated the grafting operation in the sacro-iliac joints combined with an arthrodesis of the symphysis pubis. At the present time there appeared to be commencing union.

The **President** said that it was clear that another discussion on this subject would be advantageous in two years' time; many points of operative procedure, such as the exposure of the joint, excision, &c., had not been touched on, and there was no agreement as to what was meant by the term "sacro-iliac disease." The diagnostic sign he found most useful was the production of tenderness in the joint by putting it on the strain by forcible flexion or extension. In treatment the important thing was stabilisation with lateral pressure on the crests, the sacrum being inaccessible to direct pressure.

Mr. **Verrall**, in replying, pointed out the importance of differentiating from ovarian pain, and maintained that in all true cases there was a tender point over the joint, often in association with other tender points—e.g., over the sacro-sciatic notch—due to pain referred along the nerves.

At the conclusion of the meeting Dr. **Cyriax** gave a demonstration of his method of manipulation.

SECTION OF OTOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A meeting of this section was held on Dec. 6th, Dr. **Kerr Love**, President of the section, being in the chair.

Malignant Disease of the Ear.

Mr. **Sydney Scott** showed skiagrams of a man, aged 27, who had malignant disease of the ear. About three years ago an epithelioma had been removed from the patient's scalp, glands being at the same time excised from the left side of the neck. There had since been several recurrences. The sections of the growth showed well-marked cell-nest formation, as reported by Mr. C. O. Davies, of Liverpool. The left pinna was now protruding, and an ulcerating mass blocked the meatus. Below the ear was an irregular mass, which adhered to the skin and was fixed. X rays showed that the apex of the mastoid had become absorbed. This appeared to be a secondary malignant growth of cervical lymphatics, with invasion of the auditory meatus and mastoid process.

Mr. W. H. **JEWELL** related the case of a woman who died of a fungating growth behind the ear. Two years previously a breast was removed on account of carcinoma.

Sir J. **DUNDAS-GRANT** showed some sections to illustrate the beneficial action of radium on endothelioma which was grafted upon angioma of the middle ear. The radium had produced a great change in the microscopical character, for there was now no sign of tumour cell structure, and there was not now the liability to bleed when touched.

Sir **WILLIAM MILLIGAN** said no great change should be expected in a squamous-celled growth such as this from the application of radium. It was a different matter in the kind of growth mentioned by Sir James Dundas-Grant, in which there was a fair quantity of fibrous tissue. In such a case as Mr. Scott's he advised surgical removal of the ear and a careful dissection of the lymphatic plexus, followed by diathermy. If, however, radium should be preferred, it should be applied by means of a dense " barrage " of small tubes charged with the salt.

Mr. H. V. **FORSTER** spoke of a case of epithelioma of the external meatus which he curetted and examined. There was a rapid recurrence, and he then did a radical mastoid operation. Though a good deal of relief followed this, there was a further recurrence, and he used a heavy dose of radium, but without any good result. He hesitated to employ diathermy because the disease had now implicated the bone.

Dr. **LOGAN TURNER** pointed out that the case alluded to by Mr. Jewell might not have been one of recurrence or metastasis, but possibly a new tumour altogether.

Mr. **SCOTT**, in his reply, showed how very rare it was for secondary cancer to appear on a neighbouring surface, such as on a contiguous lip of the vulva. Nowadays there was no need to fear that necrosis of bone would be produced by diathermy.

Mastoid Fistula Closed by Tube-flap.

Dr. **DAN MCKENZIE** showed a boy, aged 9, who, after a Schwartze operation, was left with a large wound which would not close. Success followed the use of a tube-flap cut from the neck. Dr. McKenzie said that if he should meet with the same difficulty in another case he would cut the flap from the forearm.

Temporo-sphenoidal Abscess.

Mr. T. H. **JUST** showed a man, aged 32, who for five years had had discharge from both ears. During the past eight weeks he had been giddy; also had suffered from headaches and rigors for six days. Mr. Just carried out a radical mastoid operation, when he found a cholesteatoma, perisinus pus, with a clot in the sinus; therefore the sinus was obliterated. There was a large fistula in the external semicircular canal. A day or two later there was violent headache; the patient was drowsy. Exploration of the temporo-sphenoidal lobe revealed a large abscess which was washed out and the residue aspirated. Recovery thereafter proceeded without interruption. Three weeks later a plastic operation to close the wound behind the ear was done, but in a day there was again violent headache. The wound was thereupon left widely opened, and recovery was uneventful.

The case was fully discussed, and Mr. Just was much commended on his success.

GYNÆCOLOGICAL HOSPITAL ACCOMMODATION IN LIVERPOOL.—Negotiations for better accommodation, long on hand between the Shaw-street Hospital for Women and the Samaritan Hospital for Women, have now been brought to a happy conclusion. For many years these institutions have struggled against great handicaps in the shape of the improvised nature of their premises. House after house has been taken in as the work expanded and as far as possible altered, but narrow passages, small doors, and a multiplicity of rooms remained. The corporation have now given a suitable site, and the gynæcological hospitals of the city should before long have ample and efficient accommodation to carry on their good work.

MEDICAL SOCIETY OF LONDON.

INSULIN IN THE TREATMENT OF DIABETES.

A MEETING of this Society was held on Dec. 8th, under the presidency of Dr. **EUSTACE M. CALLENDER**, when Dr. **GEORGE GRAHAM** introduced the discussion by reading a paper on the Present Position of the Treatment of Diabetes by Insulin, which appears substantially in full on p. 1265.

Prof. **HUGH MACLEAN** agreed that insulin had been a very great success in the treatment of diabetes, and when one met with an uncomplicated case one could say, almost with certainty, that the disease could be controlled by the intelligent use of insulin. He foresaw that the discussion on the best methods of using the new preparation would last for some years. The safest way was to observe what Nature did, and if that process was followed by the physician, he could not go far wrong. Keeping the blood-sugar within normal limits was comparatively easy with the patient in hospital, but when there was not this control it might prove a very difficult matter. It was difficult to so arrange matters that there would not be a small quantity of acetone in the urine. He did not quite agree that when a patient on a certain amount of carbohydrate stopped insulin there was a great danger in so doing. A patient who had been living as a result of the insulin he was taking might pass into coma, but in cases of medium severity he had seen the patient stop his insulin with no supervention of symptoms. He deplored the fact that the lay press had published far and wide the statement that when once insulin had been commenced it must be continued. Severe cases would naturally have to continue it, but that was not the fact in regard to moderate ones. He agreed that children made difficult subjects, and said that, in winter especially, when they had other complaints, they were liable to coma. A question which was now being asked was as to whether a diabetic person under treatment with insulin might be given medical permission to marry. Without expressing a decided view, he thought the psychological effect on the patient of a negative answer on this question might prove as harmful as permitting him to take the risk of matrimony. In the case of a medical man with the disease, who was taking insulin, he gave permission to marry. He was inclined to agree with the American authority who said that every patient under 40 suffering from diabetes of definite degree should have insulin; he did not mean those who simply had a defect of storage without evidence of lack of oxidation, as they might go on for many years. He referred to an extraordinary type of case in which there was definite renal glycosuria associated with definite diabetes. The patient passed almost into coma, yet the blood-sugar never went beyond 0·25, and later came down to 0·18. After 5 units of insulin she had definite symptoms of hyperglycæmia. In conclusion, he spoke of the definite tonic effect of insulin on some patients.

Dr. C. M. **WILSON** said the whole question of the value of insulin in diabetes was still sub judice. It was necessary to have series of cases treated in both ways and compare them He did not think that had yet been done, and even if it had, the time which could have elapsed since the introduction of insulin had not been sufficient for a judgment to be formed. In the present state of knowledge it was important to keep the blood-sugar within normal limits; and, that being so, was it best done by dieting or by the use of insulin? The general tonic effect of the latter made the problem a difficult one from the scientific standpoint. He hoped to hear something about the elderly diabetic who had eye symptoms. What had been the result of the use of insulin in these diabetics with diabetic retinitis? He had seen several such treated with insulin, and, on the whole, the results were somewhat disappointing. Elderly and young diabetics were usually keen on the treatment, but the middle-aged subject was apt to treat the matter lightly, and to be very reluctant to conform to the rules laid down for him. He agreed that insulin had been most valuable in the dramatic cases, such as the comatose, but there was still needed a good deal of careful observation and comparison.

Dr. E. G. B. CALVERT related his treatment of four selected cases of diabetes by insulin and gave the results. Winter and Smith, and others, showed that parathyroid enhanced the action of insulin, possibly by preventing the loss of calcium; similar beneficial effects occurred in Graves's disease, in which also there was a calcium loss. In cases without ketonuria or signs of acidosis, improvement after parathyroid was nil, but when acidosis or ketonuria was marked small doses did considerable good. He had also been noting the influence on metabolism of dextrose, fructose, sucrose, and starch when given with varying doses of insulin. These he stated at length, emphasising in this connexion the great value of orange-juice.

Sir JOHN BROADBENT referred to an extraordinary case which he had under his care last summer—that of a man who had 6 per cent. of sugar in the urine, and whose blood-sugar was 0·29 per cent. Two days of starvation did not materially reduce either. He was put upon insulin and the dose gradually increased to 25 units twice a day—i.e., 50 units per diem—taking at the same time only 10 g. of carbohydrate. Still his blood-sugar was 0·25, and the urinary sugar 4 per cent. He was then starved 72 hours. The urine thereafter became sugar-free, and he was again put on to 10 g. carbohydrate and had 10 units of insulin on this diet. He had remained sugar-free without insulin. His carbohydrates having been steadily increased until the quantity was now 40 g., he had since remained sugar-free without insulin.

Dr. W. LANGDON BROWN said much injury had been done to the cause of the treatment of diabetes by insulin by the unfortunate remark that people who started with insulin must continue with it for the remainder of their lives. He thought Dr. Wilson had taken an unduly pessimistic view of the outlook. He gave some particulars of successful cases in children treated by the preparation, and expressed his strong view that the outlook for diabetic patients was now much better than at any former time.

Dr. E. P. POULTON advocated, in some cases, splitting the daily dosage of insulin into three portions. He related a number of cases, and advocated the use of insulin, especially in young cases, as soon as the symptoms began to be manifest. In older patients the first definite effect of the insulin seemed to be the disappearance of the tiredness which had been so striking. Carrots and Jerusalem artichokes were much preferable to bread and oatmeal and potatoes.

Dr. GRAHAM, in a brief reply, said he regarded the retinitis as a part of the arterial condition in these diabetics. One reason why children were such difficult subjects was the risk they ran of acute infectious fevers, &c., and he did not know how this risk was to be diminished. With regard to marriage, permission to marry could not be so freely given to the woman as to the man, as the former had the very real risks attending pregnancy, the incidents of which were liable to place a great strain upon her in the presence of such a disease as diabetes.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held at Sheffield on Nov. 21st, Prof. A. DONALD, the President, being in the chair.

The discussion on the President's paper on the

Treatment of Mobile Backward Displacements of the Uterus,

adjourned from the previous meeting of the Society, was resumed (THE LANCET, Nov. 8th, p. 964).

Mr. W. W. KING (Sheffield) said that he only operated upon those cases of mobile retroversion in which the symptoms were relieved by replacement of the uterus and the use of a pessary. No woman objected to the use of a pessary for three months when it was pointed out that it was being used as a test as to the advisability or otherwise of operation. The use of this test eliminated the necessity for suspension operations in all but a very few cases. He considered that dyspareunia, sterility, and repeated abortions were, of themselves, indications for operation. He related cases of the cure of symptoms by sling suspension operations and their recurrence when the round ligaments gave way, so that the uterus again became retroverted. He took this to prove that retroversion did sometimes cause symptoms. He rarely undertook the operation of curettage except as a diagnostic procedure or in cases of retained products of conception.

Dr. LEITH MURRAY (Liverpool) tabulated his cases of ventro-suspensions during the three years 1921–23; they numbered 31 of a total of 593 abdominal operations carried out at the hospital for women. Of 12 cases nine were in married nulliparous women, mainly for sterility, and three were in single women and were decided on after exploration, an original diagnosis of mild inflammatory disease having been made. He was in complete agreement with the President, that there was little need for suspensory operations in nulliparous women, but contrasted the large number of cases for which the President recommended curetting with the rare occasions on which he himself considered this necessary. No single woman was curetted during the three years analysed, and only one married nulliparous woman. With regard to multiparous women he found much difficulty in appraising the more usual complications of child-bearing, such as subinvolution, mild appendage disease, and slight descent, in relation to symptoms. He considered that in mobile retro-displacements hyperæmia was intrinsic, and was not determined by the backward position. Curettage was the best treatment for subinvolution, except possibly in very big, heavy, tender, and retroflexed uteri, where he was of the opinion that a suspensory operation in addition to the curettage would more quickly lead to improvement. He preferred the term functional hyperactivity to "disordered action of the uterus" and subinvolution, in most cases, to "endometritis."

Mr. MILES H. PHILLIPS, who was unable to be present, had asked Dr. JOHN CHISHOLM to express the following views on his behalf. He was in agreement with Prof. Donald that the chief symptom of mobile retroversion was: (1) pelvic discomfort, varying in amount, and even in the same patient at different times. If neglected, frequently neurasthenia followed. The other troubles were: (2) sterility, (3) liability to abortion, and (4) dyspareunia, more especially when the ovaries were prolapsed. All these symptoms, if uncomplicated by other conditions, could be cured by replacement of the uterus, and its retention by a pessary or suspension operation. Mr. Phillips was astonished that cases of this kind occurred so rarely in the President's practice. The retroversion, however, was often of much less importance than some other conditions also present, for example: (1) gonococcal or other infection of the cervix, endometrium, myometrium, or appendages; (2) vaginal prolapse; (3) hypertrophied vaginal cervix. To overlook these and attend only to the retroversion was a frequent cause of disappointment. Often it was easy to tell what degree of attention the retroversion required in the inflammatory cases. But, in others, a pessary was first employed as a test before operation was advised. Mr. Phillips was satisfied that a retroversion did not cause endometritis. This was a statement made by people who looked upon any condition of hyperplasia as being caused by endometritis. He believed that congestion of the cervix and body of the uterus were produced by retroversion in many but not in all cases. This depended on the tone in the broad ligaments and utero-sacral folds. He was astonished that the

President had overlooked the paper by the late Sir W. Japp Sinclair on the engorgement and erosion of the posterior lip of the cervix in retroflexion. The speaker had on many occasions demonstrated that the condition disappeared after the uterus had been put in its proper position, a fact which pointed to some interference with the circulation. Again, drainage was interfered with by a retroversion in the puerperium and occasional cases of lochiometra resulted. In these the benefit of the semi-prone position for an hour or two, or even longer in bad cases, before the retroverted uterus could be reduced, was often seen. Mr. Phillips knew of three cases of acute abdominal pain produced by the retroverted uterus being caught and held by the utero-sacral folds. In two of the cases the surgeon at the operation (abdominal section) had considerable difficulty in dislodging the fundus, although there were no adhesions. In one of these cases the patient was a young nurse who was lifting a heavy bed.

Dr. FLETCHER SHAW said his views on this subject exactly coincided with those of the President, and, as he had on two previous occasions collaborated with him in papers upon this subject, there seemed no object in further reiterating his views, but it might be useful if he gave the reasons for his convictions. Many years ago, when resident surgical officer at St. Mary's Hospitals, he worked under two chiefs whose views were diametrically opposed on this subject. In one ward these mobile retroflexed uteri were always fixed up and in the other ward they were treated by curetting, just as an anteflexed uterus with the same symptoms would be, and in order to form his own opinion on the subject he had investigated a large number of these cases which had been treated by curetting. The symptoms were tabulated, the position of the uterus noted, and a questionnaire sent to each patient asking for the result in each separate symptom. These patients were then divided into two groups: anteflexed and retroflexed uteri. In each group the symptoms were the same, the only difference being the position of the uterus, and so if retroflexion was the cause of the symptoms it would be impossible for curetting, which left the uterus in the same position, to cure this group. The results showed, under every heading, that the group of retroflexed uteri had a slightly higher percentage of cures than the anteflexed uteri. That was many years ago, but quite recently he had made another investigation of a series of his own cases—163 altogether—and found the results exactly the same. The anteflexed uteri gave 75·7 per cent. of cures and the retroflexed 82 per cent. After this investigation it would be impossible to believe otherwise than that a mobile retroflexion did not produce symptoms, except in very rare instances. He thought that practically all the speakers in this discussion were in agreement with the President, who believed that retroflexion did not produce symptoms, but he granted that, like almost everything in medicine, there were a few exceptions, and most of the speakers who were supporting ventral fixation in this discussion seemed to be arguing largely from these exceptions, as they very seldom performed ventral fixation for simple mobile retroflexion.

Reply.

The PRESIDENT, in replying, said that as he had dealt with most of the criticisms which were really pertinent in the body of his paper he would not occupy more time. Some of the speakers had evaded the main point at issue—mainly the significance of retroversion and the criticisms of the congestion theory. He thought that he might say that the discussion as a whole showed that the feeling was against the indiscriminate performance of suspension operation.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The third meeting of the session will be held at the Miller General Hospital, Greenwich, S.F., to-day (Friday) at 8.45 P.M., when the Purvis oration will be delivered by Mr. Bellingham G. Smith on the Importance of Antenatal Clinics. This will be followed by a demonstration of the super-microscope by Mr. F. Davidson, illustrated by lantern slides.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

FURTHER SITTINGS.

(Continued from p. 1134.)

THE Commission resumed its sittings on Dec. 2nd, with Mr. H. P. Macmillan, K.C., presiding.

EVIDENCE OF EXECUTIVE OFFICERS.

Mr. H. F. Keene, the Chief Officer, Mental Hospitals Department, L.C.C., continued his evidence. He said discrimination was now made in regard to diet between manual and non-manual workers, the dietary being now less rigid than formerly. During 1923 3152 patients were admitted to London mental hospitals and 881 were discharged recovered. During 29 years 30,718 patients had been discharged recovered, and of these 9177 had been readmitted, one-third of them within 12 months of their discharge. Questioned by the Chairman as to the extent to which visiting committees safeguarded the interests of patients, he said he thought the present arrangements in respect to visiting committees did safeguard the patients' interests, and medical officers and chaplain and visiting ministers helped in that matter also. He said the population of the mental hospitals under the L.C.C. was 18,918, and that of the institutions of the Metropolitan Asylums Board was 5148. In the latter establishments there had been a diminution in the number of chronic and harmless lunatics of recent years.

Mr. W. G. Lobjoit, J.P., who is chairman of the Visiting Committee of Middlesex Mental Hospital, was strongly of the view that there should be two certificates for the detention of all cases, whether rate-aided or private. If, however, only one certificate was agreed to, it should be given by a doctor expert in mental diseases.

Mr. W. E. Lovsey, representing the Visiting Committee of the Birmingham Mental Hospitals, also urged the assimilation of procedure in Poor-law and private patients. He thought the present system of discharging patients worked without any injustice. Dealing with the question of allegations of ill-treatment, he said that in his ten years of experience disciplinary action had had to be taken in only one instance, that of a probationer.

EVIDENCE OF MEDICAL SUPERINTENDENTS.

Dr. Henry Yellowlees (medical superintendent, The Retreat, York) and Mrs. Constance Crosland (a member of the managing committee of that institution) were the next witnesses. Dr. Yellowlees explained that only private cases were taken at "The Retreat." Its foundation was due to the Society of Friends, and it was run on lines parallel with those of the other 12 registered hospitals. The hospital was not on the villa system, though it had two or three associated villas. There were 180 beds in the establishment, and the institution was mostly self-supporting. There were two medical officers in addition to himself. He thought that before a nurse finished her training for a permanent position in a mental hospital she should have had experience in a general hospital. In reply to questions, the witness spoke of the system followed should there be any complaints by patients. He preferred that the nurse should be present during the hearing of the complaint. A medical officer of experience and knowledge saw every patient every day, and he did not think any greater safeguard could be provided. Most of the complaints received had reference to roughness practised by the younger nurses. One was in respect to a female patient who had a very strong objection to taking a bath, and other patients who heard the struggles reported that torture was being carried out. Mrs. Crosland herself witnessed the next attempt, and saw it was necessary to carry the particular patient to the bath in a sheet, and the struggling was so violent that it was impossible to avoid dropping her. Dr. Yellowlees agreed, in answer to Earl Russell, that in some such cases an ordinary washing would suffice. With regard to patients' letters, the medical witness said that when he had been warned about letters to particular persons, he took care that any so addressed were not sent. Otherwise freedom was allowed in this matter. He spoke of the parole allowed, during which patients went shopping in the town or visited relatives. Sometimes relatives of patients from a distance took accommodation in the town so that such visits could be paid. He did not have to turn applicants away through lack of accommodation. Sometimes patients were sent there who might well have been treated elsewhere first, such as those with acute delirium, which might be recovered from in three or four days. In practically all the cases which came to "The Retreat" the boundary line into definite insanity had been undoubtedly passed, and it might be said that a proportion of them would not have crossed that boundary if proper treatment had been commenced early. It was a gradual process. He once declared, in an article, that it was only in a court of law that a man was declared to be sane on a Monday and insane on the Tuesday. In his institution recently he tested the feeling of all the certified patients, by means of a questionnaire, as to whether they definitely resented their detention. If an answer was at all resentful it was included in the affirmatives. The result was: Yes, 15; incoherent, silent, or doubtful, 46; No, 89. If, when a patient was ready to be discharged recovered, it was represented by the relatives that the conditions at home were not favourable for his reception and he thought this was not genuine, he discharged the patient, and so forced the relatives to do their part. In answer to a further question, the witness said he did not know of cases in which a discharged patient changed his medical attendant out of resentfulness for what had happened. Dr. Yellowlees detailed the equipment of the hospital for treatment purposes and the care exercised over the custody and administration of hypnotic and other drugs. He had not known of drugs, such as croton oil, being given for punishment purposes. The nurses in his institution were in the proportion of one to every two patients, but that was largely because some patients paid for the exclusive services of one, sometimes two nurses. Patients suffering from epilepsy or from the gross congenital defects were not received at the institution. About half the admissions in any one year were voluntary boarders, and not certifiable. In answer to Sir David Drummond, he admitted it would be an advantage to have a woman doctor on the staff of a mental hospital; many of the female patients expressed a preference for a woman attendant.

Dr. J. G. Porter Phillips (physician-superintendent of Bethlem Royal Hospital) was the next witness. He was accompanied by Mr. Lionel L. Faudel Phillips, the governor of the hospital. He said the voluntary boarder system had been in vogue at Bethlem for 40 years, and from the careful observations made by his predecessors and himself he considered it was a system to be encouraged in every way. Nearly 40 per cent. of the inmates were voluntary patients, and the straightforward voluntary patient did not cause trouble; he knew he was ill, and sought advice. Quite 70 per cent. of the patients were admitted on a free basis, the expense being met by a charitable foundation. Among voluntary patients he had had a recovery-rate as high as 50 per cent. Quite a number were restored to society without certification, and he advocated an extension of this system of voluntary residence. For all patients he would like to see operative a temporary "observation order," with some necessary power of control, but short of that attaching to certification. This would probably result in a reduction in the number of certified patients. A certain number of cases could be adequately looked after and treated in a general hospital, not in the general wards, but a separate wing or special wards could be set apart for them. Their mental state might be causally associated with acute physical illness, and then everything was to be gained by retaining the atmosphere of a general hospital; certainly the patients had more confidence in themselves. In the mental out-patient department at St. Bartholomew's Hospital the patients derived great benefit, but they sometimes retrogressed between visits. That hospital had no wards for mental cases.

Mr. Faudel Phillips spoke of his work at Bethlem Hospital and his investigation of complaints. In ten years he had not seen a patient whom he considered to have been wrongfully detained. He expressed himself as strongly in favour of the system of voluntary patients. The stigma attaching to certification was a very real thing, and the very name "Bethlem"—corrupted to "Bedlam"—was an obstacle to the hospital's work. Perhaps 99 per cent. of the patients on leaving thanked the doctors and the committee for what had been done for them. In reply to Sir Humphry Rolleston, Dr. Porter Phillips admitted it would be a great help if there were a system whereby a patient agreed to his detention for such time as the doctor decided was necessary.

Reviews and Notices of Books.

ANAPHYLAXIS AND SENSITISATION.

By R. CRANSTON LOW, M.D., F.R.C.P., Assistant Physician for Diseases of the Skin, Royal Infirmary, Edinburgh. Edinburgh: W. Green and Son, Ltd. 1924. Pp. 384. 25*s.*

THIS volume is a reproduction of a thesis submitted by the author for the degree of M.D. of the University of Edinburgh, and we are not surprised to learn that it gained a gold medal. Some idea of the labour involved in its preparation may be gathered from the fact that the bibliography of references at the end occupies 75 pages, roughly one-fifth of the whole volume. The value of such a complete bibliography in itself is, of course, very great, and the author deserves the sincere thanks of his fellow-workers for its compilation; but the chief merit of the book lies in the impartial way in which he has collected the facts established and the theories put forward by others, and incorporated with them results of his own investigations and his own views. It is, of course, mainly with reference to diseases of the skin that the problems of anaphylaxis and sensitisation are considered, but the first two chapters form a good survey of our present knowledge of the whole subject. Serum sickness is generally regarded as a true anaphylactic phenomenon, and the author considers that the natural hypersensitiveness to foods, animal emanations, and plants which characterises certain persons, and is manifested by urticarial rashes, gastro-intestinal disturbances, hay fever, and asthma, is also of an anaphylactic nature. This view has, of course, been warmly contested, but the objections to it do not bear analysis. The hereditary transmission of this hypersensitiveness, which has also been denied, is a striking point, and may correspond to the transmission of sensitiveness to their young by experimentally sensitised animals.

After these two introductory chapters, various skin diseases, in the production of which sensitisation may be assumed to play an important rôle, are considered. Urticaria of internal origin is in all probability always a true anaphylactic phenomenon, as the observations of Widal and others would suggest, but the various drug-rashes can hardly be so regarded, since experiments on animals, with a view to producing in them active and passive anaphylaxis to drugs, have proved negative with a few doubtful exceptions; it is, however, possible to desensitise a person to a drug by preliminary small doses or by prolonged administration of minute doses. In the chapter on the erythemata and purpura, the author rightly takes the view that erythema exudativum multiforme is a clinical entity, and should be separated from the erythemato-urticarial eruptions that may follow the taking of drugs, of certain foods, and the administration of foreign sera. There would seem to be no doubt that true recurrent erythema multiforme is due to sensitisation of the skin to a streptococcus, possibly a specific strain which cannot, however, be at present defined by laboratory tests. Dr. Low states that "erythema multiforme is not associated with true rheumatic fever, and any rheumatic eruptions are possibly due to absorption from the throat or other septic focus." This statement raises the question: What is true rheumatic fever? That erythema multiforme occurs not infrequently with attacks of typical acute rheumatism and rheumatic endocarditis is unquestionable, and we have seen it usher in a fatal malignant streptococcal endocarditis in a child with old rheumatic valvular disease. We must admit that we cannot see any reason for separating acute rheumatism from other forms of streptococcal arthritis and endocarditis, although it may be admitted that different strains of streptococcus are probably responsible for the different types of cases met with. The same question arises, of course, with regard to erythema nodosum, the association of which with acute rheumatism has been affirmed by some and denied by others. It can hardly be doubted that the usual form of erythema nodosum is due to streptococcal infection, the lesions bearing the same relationship to this infection as erythema induratum bears to tuberculosis; streptococci have actually been demonstrated in the lesions and have been found in the blood during an attack. There is no more reason to suppose that it is caused by a specific organism other than a streptococcus than in the case of acute rheumatism, and Rosenow's claims to have isolated a specific diplo-bacillus require the confirmation that is singularly lacking in nearly all his work on focal infection. It is obvious that this, the common form of erythema nodosum, is the deep or subcutaneous variety of true erythema multiforme; the two may appear simultaneously, and cases have been seen in which recurrent attacks of one or the other recurred over a period of several years until the tonsils were enucleated and an autogenous streptococcal vaccine given.

At the same time nodose erythema and eruptions of the erythema multiforme type may occur in persons sensitised not only to infections other than streptococcal, but to sera and certain drugs. Thus the evidence that an erythema nodosum, distinct from erythema induratum, may be a manifestation of tuberculosis is very strong, and probably the same is true in leprosy and syphilis; it is also a rare form of trichophytide, and, of course, nodular erythematous lesions may be produced by iodides. To sum up, although erythema multiforme and erythema nodosum in their most characteristic forms may be regarded as specific entities and due to streptococcal infection, similar types of cutaneous reaction may be caused by sensitisation to other toxins. In a short chapter on dermatitis herpetiformis and pemphigus, Dr. Low suggests that the former is "due to sensitisation of groups of cutaneous nerve-endings to some bacterial protein from the bowel." He is also inclined to consider pemphigus vulgaris as having a similar cause, but in this disease there is probably a general infection of the blood and internal organs, whereas in dermatitis herpetiformis the infection is confined to the intestines. He refers to the bacteriological work of Radaeli and Tominasi, but does not mention the more recent observations of F. Eberson.

After dealing with sensitisation in tuberculosis and syphilis, Dr. Low contributes a most valuable chapter on sensitisation and immunity to fungus infections. The important work of Jadassohn, Bloch, Rasch, Sutter, and others on the trichophytides has not been given the recognition it deserves in text-books of dermatology, and we welcome the very full account that is here provided, not only of the observations of the above authors, but also of Dr. Low's own investigations in this subject. The study of the mode of production of these trichophytides and the tuberculides, and of the close analogy that exists between the two, is one of the most fascinating subjects in dermatology, and has thrown much light on the pathogenesis of skin eruptions in various infections. The chapters on dermatitis venenata, in which the author's well-known experiments on himself with *Primula obconica* are described in detail, and those on eczema and focal infection, afford an admirable review of these subjects, which are almost of as much importance to the general physician as to the dermatologist. We are delighted to find at last an intelligent account of the pathogenesis of eczema, seborrhœic dermatitis, and seborrhœic eczema, and with Dr. Low's views we are for the most part in entire agreement. Eczema, of course, is merely a reaction of the skin dependent on epidermal sensitisation, and this sensitisation may be due to an external irritant or to a toxin absorbed from within. The actual sensitising agents are numerous and varied; thus they may be chemical, of animal or vegetable origin, or bacterial. The confusion between so-called seborrhœic dermatitis and seborrhœic eczema is quite unnecessary; the former term should be applied to the group of eruptions that occurs in seborrhœic persons, in which the inflammatory changes in the skin are entirely due to the active growth of the seborrhœic organisms, the staphylococcus, and the "bottle-bacillus" (it is doubtful whether the microbacillus ever causes inflammation, although it is the cause of the comedo of acne); these eruptions are exactly comparable to tinea circinata. When, however, sensitisation of the skin to the staphylococcus takes place, an eczema results and the eruption is no longer due merely to the parasitic growth in the skin of the staphylococcus. Seborrhœic dermatitis is easily cured temporarily by local applications, but seborrhœic eczema is intolerant of such treatment, and, the skin being in a sensitised state, the eczema is made worse by their use.

The last two chapters deal with tests for cutaneous hypersensitiveness and non-specific desensitisation. The cutaneous protein tests, which have been much in vogue of late, are discussed in detail. With regard to non-specific desensitisation, various methods are considered—e.g., intravenous injections of typhoid and other vaccines, peptone, intramuscular injections of milk, and autosero- or auto-hæmotherapy. Dr. Low gives details of cases treated by himself with peptone and with milk. Prurigo, psoriasis, seborrhœic eczema, and generalised exfoliative dermatitis were the principal conditions treated. With the exception of one case of psoriasis, in which exfoliative dermatitis supervened, and which reacted very well to injections of milk, the results were not good. No cases of seborrhœic eczema treated by injections of peptone are, however, recorded, although the author's colleague, Dr. Frederick Gardiner, has testified to their undoubted value in this condition. On the whole, however, non-specific protein therapy and auto-hæmotherapy have not yielded the results that were at one time looked for; occasional brilliant successes have been recorded by a number of authors, but both methods are very inconstant and usually disappointing.

Dr. Low's book deserves a very warm reception from the whole medical profession; it is the result of many years toil and is a great credit to the Edinburgh School of Dermatology, which, under the inspiration of Sir Norman Walker, has deservedly earned its reputation for the excellence of its teaching and the sanity of its views. The volume is very well produced, the illustrations, though few in number, are well chosen, and the printing in large type of the names of the authors referred to is a welcome innovation.

Recent Advances in Medicine.

Clinical, Laboratory, Therapeutic. By G. E. Beaumont, M.A., D.M. Oxon., F.R.C.P., D.P.H. Lond., Assistant Physician to the Middlesex Hospital, and to the Hospital for Consumption and Diseases of the Chest, Brompton; and E. C. Dodds, M.B., B.S., B.Sc. Lond., Chemical Pathologist to the Middlesex Hospital, Bland-Sutton Institute of Pathology, and Lecturer in Biochemistry in the Medical School. London: J. and A. Churchill. 1924. Pp. 292. 10*s.* 6*d.*

It is with increasing difficulty that the physician is able to keep pace with the recent advances in biochemistry and other departments of scientific medicine and to apply them in his practice. Only those who have access to a wider field of literature than the ordinary practitioner, or are in the fortunate position of being able to interchange ideas and information with workers in different countries, can hope to be leaders in the application of such discoveries. As the outcome of the combined efforts of a physician and a biochemist who are engaged daily in the routine application of the newer methods this book is of exceptional value. The first chapter deals with the chemical analysis of the blood by the methods of Folin and Wu. It includes also an account of MacLean's method of blood-sugar determination, the estimation of the fragility of the red cells, the cholesterol content, and a section on blood-grouping. Succeeding chapters deal with renal function tests and their practical application; tests for glycosuria and acetone bodies; an account of acidosis and methods for its determination, with a section on diabetes mellitus and its modern treatment. The investigation of pancreatic, hepatic, and gastric functions is dealt with in detail, and methods for determining basal metabolism are given with their interpretation. A chapter is devoted to the investigation of the heart, and includes an account of the polygraph, electrocardiograph, and blood-pressure apparatus, to which is added some notes on digitalis (including Eggleston's method of administration), strophanthus, and quinidine. The electrocardiograph is described briefly, although little is said as to how to use it. The interpretation of electrocardiograms is more fully dealt with, with the aid of 13 examples from Lewis's "Clinical Electrocardiography." Further chapters include artificial pneumothorax, the protein reactions in hay fever, asthma, and urticaria, Schick test for diphtheria carriers, the diagnosis of the enteric group of infections, and the examination of the cerebro-spinal fluid.

In fewer than 300 pages Dr. Beaumont and Dr. Dodds have thus collected a mass of information of high value; often they have added comment of great excellence, and there are interspersed accounts of several recent therapeutic advances which are not easily accessible. In these chapters are to be found complete technical descriptions of nearly every laboratory test of proven utility, although we miss any description of methods for estimating the calcium content of the blood, and of the tests for mucin and pus in the urine. A book containing a description of the macroscopic Widal test and the cutaneous tests for asthma should perhaps also give the technique for the quantitative von Pirquet reaction, and since methods of blood-grouping and estimation of corpuscular fragility find a place, a subsequent edition might well include an account of modern methods of counting and measuring the blood corpuscles. The chapters are enriched by comments in which the value and limitations of the various tests are discussed, and in many cases, particularly with regard to renal, pancreatic, and hepatic function and basal metabolism, these comments will be found of great utility.

Perhaps the authors have attempted too much, aud many of the therapeutic measures described can be found in other easily accessible works. But it is a real achievement to have brought together successfully within the compass of a small book all the important recent advances in practical medicine. The volume should find a place in every clinic where attempts are made to keep abreast of the times in laboratory methods. It will also make a strong appeal to the practitioner, who, though he may have no opportunity of carrying out tests for himself, must have sufficient knowledge of the technique involved and of the interpretation to be sought from their results to satisfy himself and the patient that they are worth the inconvenience and expense involved.

Diseases of the Skin.

Hautkrankheiten (Mracek-Jesionek). Fifth edition. Edited by Dr. P. Mulzer, Professor of Dermatology and Syphilis at the University of Munich. Munich: Lehmanns Verlag. 1924. With coloured plates. Pp. 260. M.22.

A copiously illustrated text-book of dermatology has two main advantages: (1) It recalls the visual memory of cases formerly studied in the skin out-patient department, and (2) it records actual cases, and affords to dermatologists of other countries an opportunity of revising nomenclature and keeping it up to date. Coloured plates, therefore, tend to international standardisation, and are for that reason greatly to be encouraged in dermatological literature. Several different processes appear to have been utilised in the coloured reproductions of this book, and the results are therefore very uneven. The most pleasing and true to nature are the group of colour-photographs towards the end of the book, dealing with tinea in its effects in various situations on the body and scalp. These plates are not original, being reprints from an excellent text-book, "Fadenpilz-Krankheiten," on this subject, by R. O. Stein-Henning. Intermediate in accuracy and artistic value are some coloured reproductions of museum moulage specimens, while very crude and sometimes even misleading are the old-fashioned prints from original water-colour sketches. These are doubtless relics from a former edition, and might well have been omitted. There are also a number of good plain photographs, which to the trained eye, at any rate, are of more use than the last named. Most of the plates are described from actual cases, which are reported, in some detail, on the opposite page. This seems an excellent plan, and one which adds greatly to the interest and educative value of the letterpress. Treatment is discussed in general terms in a dissertation of 38 pages at the beginning of the book. Under the different diseases it receives more detailed consideration, and differential diagnosis is also shortly specified. The arrangement of the text could be improved. The subjects appear to have been taken haphazard, and there is no attempt at classification on modern lines. This necessitates a constant and tiresome reference to the index, and entirely obviates the possibility of consecutive reading.

On the whole this book can be recommended both to students and practitioners with a knowledge of the German language as reaching a fairly high standard as a text-book.

Toxicology, or the Effects of Poisons.

By Frank P. Underhill, Ph.D., Professor of Pharmacology and Toxicology, School of Medicine, Yale University. Philadelphia: P. Blakiston's Son and Co. 1924. Pp. 292.

This manual of toxicology, intended as the preface states for medical students and physicians, has many excellent features. The material is well and concisely put together, and each poisonous substance is treated systematically as regards general properties, symptoms, fatal dose, post-mortem findings, and treatment.

The author, at the outset, states that no attempt has been made by him to enter into details of the isolation and identification of poisons. The word "toxicology" may be taken to mean the science of poisons, covering a wider field than the subtitle. The omission of any analytical detail is unfortunate. It is doubtless true that the student of medicine and the physician are not expected to have skilled knowledge of this branch, but they should at some period of their academic career have mastered the general principles. In cases of poisoning where, for example, a bottle is found beside the patient, the knowledge of a few simple tests for some of the commoner poisons may enable the physician to gain an idea of the nature of the poison, which will greatly assist him in his diagnosis and treatment. Though omitting details of this sort the author does not hesitate to give in full the constitutional formulæ of a number of the complex organic drugs, including the alkaloids, many of which are still speculative. This branch of the subject is intriguing, but it is rather overwhelming. Incidentally the graphic formulæ for antipyrin and camphor are incorrectly rendered.

The sections on treatment are good, and the author has been wise in omitting the older traditional antidotes which have little, if any, practical value, such as ferric hydroxide in arsenical poisoning. In carbon monoxide poisoning mention is made of the value of the inhalation mixture of carbon dioxide and oxygen in order that alkalosis of the blood may not occur, and it is pointed out that transfusion of blood, if it is to be of value, must be done at once.

At the end of each subject references are given to journals and books, most of which are recent. It is satisfactory to find this, since too often in works on toxicology and forensic medicine cases of half a century ago are depended on for details, and when such cases are investigated they are often of doubtful value.

Altogether a useful manual.

UNSCIENTIFIC ESSAYS.

By FREDERIC WOOD JONES, M.B., D.Sc., Elder Professor of Anatomy in the University of Adelaide. London: Edward Arnold and Co. 1924. Pp. 208. 6*s*.

THIS book of essays is concerned with "the expression of things too trivial and too inexact to be reckoned as scientific." Prof. Wood Jones indeed plays happily, like a child "tidying" his mother's silks, with the confused medley of skeins and reels in Nature's work-basket. He makes no methodical attempt to disentangle the threads, but, picking up a strand here and there, he unravels it from its fellows and follows it far enough to indicate clearly its origin and probable destination; then he drops it, intrigued by the colour, quality, or texture of another strand. Thus he passes from the reasons why the iridescence of a patch of kerosene excites less rapture than that of the wings of a dragon-fly to those why coconuts never fall on a man's head; from the mystery of phantom tigers to the place of faith-healing in modern medicine. All must delight in the delicacy of his touch, and in the Christmas holiday season many will drop all other preoccupations to sit with him in Malaya, on the Banka Strait or on a coral island, and play with him the game at which his prowess is so infectious and so stimulating.

THE SITE OF THE GLOBE PLAYHOUSE, SOUTHWARK.

Second edition, revised and enlarged. By W. W. BRAINES, B.A. Published by arrangement with the London County Council. London: Hodder and Stoughton, Ltd. 1924. Pp. 112. 6*s*.

TWENTY-FIVE years ago the late Sir Walter Besant wrote: "The site of the Globe theatre is generally allowed to have been at a spot 150 feet south of Park-street, close to the Southwark Bridge-road and on the east of it." Ten years later this theory was attacked by a university professor from Nebraska who believed that Shakespeare's theatre was built on the north side of Park-street. Since Dr. C. W. Wallace published his articles in the *Times*, a controversy between the partizans of the North and South theories has raged intermittently, till it may now be said to have received its coup de grâce by the publication of the second edition of "The Site of the Globe Theatre." In this enlarged and revised edition of the first volume published three years ago, Mr. Braines has sifted every particle of evidence obtainable and has succeeded in demolishing one by one the arguments advanced by Dr. Wallace and Mr. George Hubbard in support of a north side site. With meticulous care he has examined the documents relating to the properties on both sides of Park-street, then called Maid-lane, the evidence of the early views and the statements of the various historians of Southwark, and the conclusions deduced in favour of the south side site may be taken as final.

The somewhat chaotic method of arrangement, by which the book ends on page 62, and then is carried on in six appendices for another 46 pages of equally interesting material, rather detracts from its value for a lay reader, but the student of old London, among whom a considerable number of medical men take a place, will find Mr. Braines's work extremely useful. The book is enhanced by 17 excellent illustrations, including reproductions of the Agas, Visscher, Merian, and Hollar views, and some interesting conjectural reconstructions by Mr. G. Topham Forest, architect to the London County Council, of "this unworthy scaffold . . . . this wooden O," on which Shakespeare once tried to represent the vasty fields of France.

PHYSIOLOGY.

Principles of General Physiology. Fourth edition. By Sir W. M. BAYLISS, M.A., D.Sc., LL.D., F.R.S., late Professor of Physiology in University College, London. London: Longmans, Green and Co. 1924. Pp. 882. 28*s*.

DURING the long illness of the late Sir William Bayliss the preparation of a fourth edition of his famous book was undertaken by various friends as a tribute of affection. Their earnest hope that he would recover, and be able himself to undertake a further edition in course of time, was disappointed. Everyone knows that this book marks an epoch in the history of the development of physiology; it is an indispensable reference book. In these days of specialisation, all must deplore the loss of a man whose knowledge was so wide and understanding so deep; the learning which could have produced from one individual such a comprehensive survey of physiological principles was indeed of no common order. Some 25 collaborators have assisted with the revision of the present edition; yet all these specialists felt satisfied that little alteration, beyond bringing a few details up to date, was required. The work will long remain a monument to one of our greatest scientific minds.

Fundamentals of Human Physiology. Third edition. By R. G. PEARCE, B.A., M.D., formerly Director, Medical Research Laboratory, Lakeside Hospital, Cleveland, Ohio; and J. J. R. MACLEOD, M.B., D.Sc., F.R.S., Professor of Physiology in the University of Toronto, Canada. Assisted by Dr. NORMAN B. TAYLOR. London: Henry Kimpton. 1924. Pp. 349. 18*s*.

THIS is a thoroughly sound introduction to elementary physiology, which students of medicine would profit by reading. It gives much really modern information in a clear and simple fashion, and is well produced. Our only fear is that the high price of the volume, which is perhaps in part due to the insertion of some coloured plates which might have been dispensed with, may prove an obstacle to the sale of the book in this country.

THE LANCET.

LONDON: SATURDAY, DECEMBER 13, 1924.

PAYMENT FOR RESEARCH.

A Berlin patent agent recently showed a list which he had compiled of famous scientists who were proprietors of bacteriological patents, telling a meeting of German naturalists that a decision of the German Patent Office had made it possible even to patent the vital processes of nature. This list might interest those who feel, rightly or wrongly, that there is some sort of taint about the word "scientist," put forward though it was 85 years ago by the learned Dr. Whewell. In the current issue of *Nature*, where the word and its associations are fully discussed, Prof. Ray Lankester implies rather unkindly that the word has acquired the significance of a charlatan's device. Professional feeling in Germany was at one time bitter on the subject of E. v. Behring's large income from biological patents, wisely though he may have spent it, and there were widespread murmurs at the enhancement by royalties of the cost of salvarsan and its congeners. It is a little unfortunate that scientific results should require to be protected against commercial exploitation by the taking out of letters patent, and while the medical profession is under a debt to many reputable houses for the readiness with which they take up and apply the findings of recent research for the benefit of the public, it is also true that there are others who avail themselves of any striking line of work, however tentative, and commercialise it in no other interest than their own. We have recently become accustomed, in the case of insulin, to the taking of measures for the protection of scientific results against unworthy exploitation. In the September number of the *Journal of Biological Chemistry*, in connexion with a paper by H. Steenbock and A. Black on "The induction of growth-promoting and calcifying properties in a ration by exposure to ultra-violet light," there appears the following footnote: "To protect the interest of the public in the possible commercial use of these and other findings soon to be published applications for Letters Patent, both as to processes and products, have been filed with the United States Patent Office and will be handled through the University of Wisconsin."

The proper reward of scientific endeavour is a matter on which very divergent views have been held. The National Union of Scientific Workers of Great Britain has made a pronouncement upon it in a recent report of its Research Committee entitled "The Encouragement of Fundamental Research." This Committee divides research into "practical," that is to say, undertaken primarily with a view to results of a practical nature, and "fundamental," that is to say, research undertaken without any immediate expectation of such results—and it is with the latter that the report is concerned. Fundamental research is of value to the community for the obvious reason that it does often lead to practical results, but quite apart from what may be called its utilitarian aspect such research work is desirable for its own sake. It tends to produce a broadmindedness and to develop the intelligence of the individual engaged in it: research does, in fact, promote that inquiring turn of mind which is such a desirable quality of citizenship. How, then, is fundamental research to be encouraged? On the question of rewarding successful research by money prizes or by granting patent rights the report before us is emphatic in its disapproval. Payment by results is, in general, wasteful—this sums up in a sentence the Research Committee's opinion. Special grants in hard cases where investigators have obtained their results only by personal sacrifice are condemned on the ground that the real remedy is to prevent the occurrence of the hard case. Prizes are criticised because they offer encouragement often to those who are in no need of them. The granting of patents is only possible for the practical application of some new principle, and this is condemned as an unsatisfactory method of rewarding the research worker. Similar views are expressed in the recent report[1] of the Privy Council Committee for Scientific and Industrial Research. This Committee is "strongly of opinion that both the community and the original investigator would alike suffer if the seeker after new knowledge were encouraged to lay claim to a share in the profits that may accrue from the subsequent applications by other workers of purely scientific discoveries to productive ends." Against these negative views both reports are strongly in favour of securing adequate means of livelihood to the man of science. This does not only mean that salaries should be of a sufficiently high standard to enable the research worker to live; he should be able to live comfortably and enjoy the leisure and independence enjoyed by others of the same rank and class, whose services to the community can never be in the aggregate so great.

This brings us back to the financial support of research. In the direct method of financial encouragement the worker may be either full-time or part-time. The former is held to be desirable for the young worker and post-graduate student, and the report of the National Union of Scientific Workers urges that such work should always be undertaken in connexion with a university. While this recommendation raises several difficult problems, the principle seems to be generally accepted. Part-time research work presents several different points of view. Most university professorships are really part-time research posts, but in some cases it is to be regretted that the time allowed for research is insufficient. On the other hand, at the lower end of the scale many junior university appointments are so inadequately paid that students with the ability to undertake research are attracted elsewhere. Funds for the encouragement of research could admirably be devoted to the retaining of keen young minds. Then come the questions of grants for apparatus and for publication. While the offer of out-of-pocket expenses at the present time often produces results out of proportion to the sums expended, it is recommended that research workers should receive salaries large enough to enable them to provide their own material. Publication is undoubtedly a stimulus to research, and while grants in aid of this are very commonly made it is also desirable that the present overlapping of many societies and publications should be eliminated. The research worker has certain obligations to the community, but at the same time the community has many obligations to the research worker, and the claim of these workers is reasonable that they should be given adequate reward, so that they may pursue their investigations without financial worry and untempted by speculative prizes.

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[1] Report of the Committee of the Privy Council for Scientific and Industrial Research for the Year 1923–24. London: H.M. Stationery Office. 3*s*.

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STIFF AND PAINFUL JOINTS.

CHRONIC arthritis, under which name we include all the conditions which used to be called rheumatic or poor man's gout, is a disease that is always with us, as it is has always been with our forefathers for hundreds, nay, thousands of years. Bones showing some of its unmistakable effects have been found in ancient Egyptian graves and cases of it seem to have occurred in almost every land and in most climates. The gout, which in the main is caused by over-indulgence in the pleasures of the table and of the bowl, becomes rarer year by year and bids fair to become only a pathological curiosity, but those forms of chronic arthritis which as far as we know are due to no excessive indulgences on the part of their victims, show no signs of departing from among us. The agricultural labourer has too often been rewarded for a manhood of frugal fare and hard labour in all weathers by an old age of crippled limbs and bowed back. The poor seamstress who has probably lived chiefly upon bread and tea has her hands so crippled as to preclude her earning any longer her scanty livelihood. Familiarity has bred not contempt for such sufferings but a certain degree of indifference, as compared with the interest and alarm with which we regard an epidemic of encephalitis or cerebro-spinal fever. We therefore welcome the address of Mr. JAMES R. KERR, which is printed in this issue and which very usefully draws attention to the important part that may be played by orthopædic treatment of chronic joint troubles. Much time has been spent in an attempt to classify the various forms of what used to be called rheumatic gout, but from the point of view of treatment it matters little whether with A. PRIBRAM we recognise 21 varieties or only two with R. JONES and R. W. LOVETT and others. The recognition of the existence of a proliferative and a degenerative type is of practical value, for the former is far less amenable to orthopædic treatment than is the latter, which, however, causes such a huge amount of suffering and disability to the middle-aged and aged of both sexes.

Pathologists have for many years been trying to find the cause or causes of this group of affections, but although various micro-organisms have been accused, no unanimous verdict has convicted any of them. It is true that the connexion with joint troubles of various septic foci—especially in the alimentary tract from the lips to the anus—has been practically established, and some striking cures have followed the removal of such foci, but there remains a vast mass of cases in which no such connexion can be established and no such cures claimed. Because complete cure can seldom if ever be hoped for, it has been too much the custom to regard these unhappy sufferers as beyond the reach of surgical help. When old BENGY, in "Tom Brown's Schooldays," asked the wise man for a cure for his lumbago, he was told that churchyard mould was the only thing that would cure "th' rhumatis," and this discouraging prognosis is still made with more or less circumlocution in only too many cases. The figures quoted by Mr. KERR from the report of the Ministry of Health make evident the vast importance of such diseases as arthritis deformans to the industrial population of this country, and arouse our pity for the terrible aggregate of suffering which accompanies them. Because cure is seldom probable, contemplation of them should not induce despair; should arouse a determination to use all the possible means of alleviation, and especially those orthopædic measures which offer the most hope. In many cases pain may be relieved and mobility restored or improved by operation on the affected joints. In others, and particularly when, for instance, only one hip-joint is affected, an arthrodesis may restore painless active movement to the body as a whole, although, paradoxically, it abolishes it in one important joint. More generally, correction of deformity, support by means of splints and instruments, and massage and physiotherapeusis directed to the restoration of movement and the redevelopment of atrophied muscles, play the most important parts in relieving disability.

It is one thing to awaken a consciousness of the value of active treatment of chronic arthritis in the profession generally. It is far more difficult to point out by what organisations such treatment can be made to reach the numerous cases which require it throughout the country. Great efforts have been, and are being, made to provide for the care and cure of crippled children by founding a network of hospitals and clinics all over the country, based on the model of the Baschurch (Shropshire) organisation. As yet the Central Committee for the Care of Cripples has probably had its hands full enough in watching over the interests of children, but there seems to be no reason why in time the benefits of the cripples' hospitals and clinics should not be extended to those adults who are so unlucky as to suffer from arthritis deformans. General practitioners throughout the country must be looked to for advice as to how early and appropriate treatment can be given to their crippled patients. At present no one can blame them if they refrain from tantalising the sufferers with hopes of relief, when they know that owing to the lack of adequate accommodation the necessary treatment is beyond their reach. There is, however, one class of cases which needs for its treatment no open operation, no elaborate or costly appliance, but which can be treated as well by the practitioner with the ordinary resources of medical practice as by a specialist in an elaborately equipped hospital. We refer to that form of arthritis which affects the wrists and the joints of the fingers, and of which the result is too often most disabling in that it interferes with wage-earning to a disastrous extent. The earliest possible constitutional and orthopædic treatment is desirable for such cases, which are most intractable if left untreated until gross changes have occurred.

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THE CONDUCT OF A G.M.C. ELECTION.

AT a meeting of the Branch Council of the General Medical Council for England, which took place during the recent session, a report was submitted by Mr. NORMAN KING, the Registrar, on the conduct of the election of Direct Representatives; the contest concerned England only, as the Scottish and Irish Representatives were returned unopposed. From the report we gather that excellent work must have been done by the staff in bringing the Register up to date, so that it should serve as a trustworthy electoral roll, in supervising the issue of the ballot papers, and, most importantly, in the scrutiny of results. We all know to what an extent during the last few years the entries in our personal address-books have had to be changed, so that it is not surprising to learn that when the outer covers of the voting papers were opened on their return, many of them contained changes of address for use in the future Register, as well as requests for the registration of additional qualifications and other matters which required attention. All this meant work for the staff that had to be done intelligently and promptly. Moreover, such a large shifting of residence implied the sending of duplicate forms, and the criticism of the Registrar's office, which appeared in certain daily papers, with regard to the late issue of some forms, was unintelligent. To those who had not notified a change of address voting papers could not be sent which should arrive at the earliest possible date, but the Registrar points out that some of the practitioners who wrote to say that they had received no voting papers made their complaint prior to the official date of issue.

It is an excellent thing that the medical constituency should keep the Registrar's office up to the mark, but it would be piquant to know whether some of the over-critical were among the considerable number of men who lost their votes by not attending to the clearly-printed instructions sent to them. The total number of voting papers issued for the English election was 29,179, of which only 607, or about 2 per cent., were returned as "dead letters," an occurrence which justifies any claim that the Registrar might like to make that no book of its kind is more accurate than the Medical Register. We have, then, to consider 28,572 circulars to which 15,229 replies were received—i.e., the percentage of the constituency which took part in the election was 55·26. But 562 out of these rendered their votes invalid by disregarding instructions, and that seems to us far too high a percentage of carelessness, considering the education of the voters. The cost of the election, which compares favourably with the cost on previous occasions, is worth attention, for it is not infrequently urged upon us that the quick and proper way of bringing certain things to the notice of all medical men is to issue a circular. Dealing with the English constituency alone the cost of the election was £373, not inclusive of the mass of extra work due to the necessity for conducting the operations between two specified and adjacent dates. For this extra work a modest grant was voted to those concerned, with the result that the total cost of the election can be roughly stated at £500. Those who think that a plebiscite of the medical profession ought to be undertaken in all circumstances where it would be convenient to ascertain corporate opinion would do well to consider the cost—as far as England only is concerned—and the probability of getting a substantial reply to any but the most vitally important sort of questionnaire.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The ninth meeting of the Commission was held at the Home Office on Dec. 4th, when the examination of the representatives of the Hearts of Oak Benefit Society, Mr. Hezekiah Dudley, chairman of the Executive Council, and Mr. J. P. Lewis, secretary, was continued. Various questions relating to transfers of membership, extension of medical benefit, to include specialist service and the desirability of adding dental benefit to the normal benefits of the Act were dealt with. Thereafter the examination of the representatives of the Ancient Order of Foresters—Mr. W. J. Torrance, High Chief Ranger, and Mr. Stanley Duff, secretary —was begun. The oral evidence given at the meeting of Nov. 20th, along with the statement submitted by the Hearts of Oak Benefit Society on which the latter part of that oral evidence was based, is on sale in proof form (3s.) at H.M. Stationery Office.

Annotations.

"Ne quid nimis."

POLIOMYELITIS.

DURING the last 20 years acute poliomyelitis has spread in epidemic form over the globe, and although small epidemics had occurred previous to 1905, it is only since that date that the disease has had its present wide prevalence. In 1912 poliomyelitis was recognised by the public health authorities in England as a definite specific fever and notification was adopted, although the British Isles suffered comparatively little during the epidemic periods. The disease, if not adequately treated, leaves a distressful train of disablement and crippling In 1916 the late Dr. F. E. Batten, when Lumleian lecturer to the Royal College of Physicians of London, discussed the condition, which was then obscure in many of its manifestations, and which had proved on occasion particularly dangerous to our troops (THE LANCET, 1916, i., 809, 829). There are many points in the disease which are still obscure, but in treatment it was recognised then, as now, that the most important factor was rest and prolonged after-care. At the present time treatment of this nature, which involves a protracted sojourn in hospital, is very difficult to obtain when the pressure on hospital accommodation is throughout the country so great. Particularly does this apply to London, and the attention of the Minister of Health has been drawn to the lack of facilities in London for dealing adequately with the after-effects of poliomyelitis in children. In ordinary circumstances the number of cases in any metropolitan borough is small, and would not justify a borough council in making independent provision for a form of treatment which is necessarily costly and elaborate, but the London County Council has started to organise arrangements under which hospital accommodation will be available for children during the later and chronic stages of the illness. The Ministry has therefore issued a circular (No. 338) to the metropolitan borough councils suggesting, as the best way of dealing with the problem, first that all practitioners residing in the area should be reminded of the importance of early diagnosis, and second that coöperation be aimed at with other authorities to send all children affected, whether the condition is slight or serious, to an institution equipped to give such special treatment as may be required to prevent avoidable muscular weakness and permanent deformity. Early diagnosis of poliomyelitis is not easy, and the significance of early symptoms may readily be overlooked. To assist medical practitioners in recognising these early symptoms the Ministry has prepared a memorandum, the substance of which we publish on p. 1250, which should prove of great value in ensuring notification before paralysis appears—the usual stage at which a diagnosis is made. If paralysis occurs, permanent crippling can only be avoided by prompt and long-continued orthopædic treatment. A case presenting the unusual feature of massive collapse of the lung is reported elsewhere (see p. 1222) by Dr. J. C. Regan, occurring in the Kingston Avenue Hospital, New York City.

CANCER OF THE ŒSOPHAGUS.

MALIGNANT growths of the œsophagus are, by reason of their situation in the middle of the thorax, perhaps more inaccessible to treatment than are cancers of any other part of the body where such tumours commonly occur. Surgical extirpation is practically impossible and, in the light of our present knowledge, the only methods which offer a prospect of cure are diathermy and radium. Owing largely to the difficulty of determining the extent of the burning when working at a long distance from the surface, and to the impossibility of estimating the thickness of the growth to be treated, diathermy is still an uncertain and dangerous method. It is doubtful if any complete cures have so far been obtained, but improvement in the permeability of the stricture has resulted; on the other hand, the resulting contraction of the fibrous tissue has been known to increase the stenosis, although apparently delaying the progress of the tumour, and fatal results have occurred from perforation into the mediastinum and pleural cavities. Nevertheless, when dealing with a fatal and otherwise incurable disease, dangerous methods are justifiable, if they can be shown to cure, or even to alleviate or delay the progress of, a proportion of cases. The application of radium can be more accurately limited, and is probably a safer method, though, with this remedy too, perforation has been known to occur.

In his Semon lecture, delivered at the Royal Society of Medicine last month, Dr. Jean Guisez did not mention diathermy, but he sounded a subdued note of hopefulness on the treatment of malignant growths of the œsophagus with radium, of which he has had a large experience in Paris. Before treatment is commenced it is necessary that the patient's general condition be good enough to allow of treatment, and that the neighbouring structures be not involved; this is determined as far as possible by skiagraphy, and a paralysed recurrent laryngeal nerve is generally considered as a contra-indication. The stenosis must also permit the passage of a No. 20 or 22 bougie, as this is equivalent to the size of the radium-bearing tube. Dr. Guisez holds that œsophagoscopy is absolutely necessary for diagnosis, and in all cases treated by radium he removes a portion of the growth for microscopical examination. The distance of the cancer from the teeth is accurately measured during the œsophagoscopy, and the radium is applied by means of two or three tubes fixed in file on a long sound. He employs a total of 100 to 120 mg. of radium bromide with thick screens of 1·5 mm. of platinum, so as to allow passage only of the gamma rays, and he gives five or six applications of 12 hours each, administered every other day. During the last 15 years he has treated 270 cases of cancer of the œsophagus by radium applications. In 30 cases the patients have survived for over 18 months, and four have died from other causes; the growth has not reappeared in two cases for 11 and 10 years respectively, in one case for five years, in four for four and three years, and in 12 cases for 18 months. The disappearance of the tumours is watched through the œsophagoscope. Dr. Guisez states that generally no trace is left, referring presumably to those cases just mentioned, and he also finds that his later results are better than the earlier ones. Disappearance, more or less complete, of the growth has thus been found to take place in 19 cases out of a total of 270—that is, in approximately 7 per cent., and a varying degree of palliation has been obtained in a further 30 cases, thus giving some improvement in about 18 per cent. of patients found suitable for this method.

As a large number of cases of œsophageal cancer are unsuitable for treatment by radium, by reason of the tightness of the stricture, the invasion of neighbouring structures, or bad condition of general health, the total results fall far short of these figures; but when we consider the great difficulties inherent in the treatment of tumours of this region, a certain degree of encouragement must be found in Dr. Guisez's thorough and careful work. Until recently any curative treatment of this disease was beyond the range of practical endeavour.

IMPROVED HEALTH CONDITIONS OF MAURITIUS.

WHEN, in 1921, Dr. Andrew Balfour made an adverse report on sanitary conditions in Mauritius it will be remembered[1] that between 3000 and 4000 persons in the island were falling victims to endemic malaria every year. Again, the death-rate of children under 5 in 1918 was over 300 per 1000 births. Dysentery and enteric fever were rife throughout the island, spread doubtless through surface contamination of the shallow wells which formed the water-supply of many parts. Dr. Balfour found no difficulty in accounting for the shocking vital statistics. He was dismayed by sights, smells, and noises which showed that not even the most elementary precautions were being taken in the interest of the public health. Flies infested the market-places; dogs had free run of the garbage and refuse heaps; pigs wallowed in the open sewage pits; and rats ran unmolested from ships moored at the quay-side of Port Louis on to the shore. The inadequacy of the medical and sanitary staff, who had, moreover, insufficient authority and power of administration, was, in Dr. Balfour's opinion, mainly responsible for the delay in carrying out urgently needed reforms.

A minute of a report submitted to the Colonial Secretary in January, 1924, by the late Governor, Sir Hesketh Bell, whose serious complaints of the sanitary conditions had induced the Colonial Office to send Dr. Balfour to Mauritius, shows that considerable progress has been made during the last three years. It will be remembered that a levy of £1,000,000 on the sugar industry provided the funds necessary for reclaiming and canalising land, and reforming the water-supply and drainage systems. The prohibition of the use of human fæcal material as manure on the fields, a vigorous anti-malaria campaign, and the provision of model dwellings for the working-classes have been among the reforms inaugurated. Strenuous efforts to improve the sanitation of Port Louis may be said to have begun in earnest in September, 1921. All authority over services affecting health was withdrawn from the municipality about that time, and the care of the streets, water-supplies, and sanitary services generally was confided to the sanitary branch of the medical department. To the energy and enthusiasm of Dr. T. B. Gilchrist and of his staff and subsequently to the good work done by Dr. Balfour Kirk, Sir Hesketh Bell attributes the reduction in the mortality at Port Louis from 2703 in 1921 to 1738 in 1923, out of a population of about 50,000, to mention only one of the signs of better conditions. The efficacy of the anti-malaria measures taken in the capital is indicated by diminution in the numbers of deaths from this cause from 333 in 1921 to 169 in 1923. It is of interest in the Mauritius medical report for the year ending December, 1923, to note that the death-rate for the whole colony (28·5 per 1000) is the lowest since 1891, and for Port Louis the rate (34·1 per 1000) is the lowest since 1880 (33·5 per 1000). It will be seen that under Sir Hesketh Bell's administration a quite promising start was made, and his successor, coming direct from the Colonial Office, will be able to carry on and extend the good work with full appreciation of the ideals to be attained.

CHRONAXIE.

AN account of his researches on the chronaxie of muscle and nerve in man, in health and disease, has just been published in the form of a monograph[1] by Dr. Georges Bourguignon. The chronaxie is determined by stimulating the muscle or nerve with measured galvanic currents, and attention is paid, not to the presence or absence of contraction of the muscle or the type or strength of contraction, but to the strength and duration of the current which produces the minimal response of the excited tissue. It has been shown during recent years that the stimulating power of the galvanic current depends not only on the strength of the current but also on its duration. Within certain limits a weak current flowing for a long time has the same power as a strong current flowing for a short time. When the current duration is progressively lengthened the current strength can be progressively weakened until a certain limit is reached at which further weakening of the current will not produce a response however long its duration. The minimum strength of current which produces the minimal response when the current flows for a so-called infinite duration is known as the rheobase. The rheobase differs in different muscles and even in the same muscle at different times, its value depending not only on the condition of the muscle, but also on its depth below the surface and the condition of the overlying skin and the position of the testing electrode. It gives no information of clinical value, but it must be determined before the chronaxie can be measured. To measure the chronaxie, say, of a muscle, the testing electrode is placed on the motor point and the rheobase is found. Then, without moving the electrode, the current representing the rheobase is doubled. The muscle, therefore, gives a stronger contraction. The duration of the current is now progressively diminished until a minimal contraction is once more obtained. The duration of the current which produces the minimal response when the rheobase is doubled is called the chronaxie. The value of knowing the chronaxie lies in the fact that the current is measured and that disturbing factors arising from the conditions of the test are eliminated. Currents of measured duration are applied when condensers are used for testing, but if the strength of the current is kept at a fixed value (as was the case in the methods hitherto used) the results are fallacious because the complications arising from the variability of the rheobase are not avoided. Dr. Bourguignon makes use of condensers of different capacity in order to obtain currents of different duration, and he finds this method more serviceable than that in which a special instrument, known as a chronaximeter, is used. But he takes the precaution of determining the rheobase before using the condensers. The chronaxie of normal muscle in man is very short, from 0·00016 to 0·0008 sec., and that of flexors is shorter than that of extensors. In muscles showing the reaction of degeneration the chronaxie is lengthened from 30 to 100 times. Dr. Bourguignon has studied the change of the chronaxie of muscle during degeneration and regeneration of the nerve, and has noted the evolution of its lengthening and subsequent shortening. His work is based on the researches of Lapicque. That part of it which deals with the human subject in health will be of interest to the physiologist. With regard to paralysed muscle, it is likely that the determination of the chronaxie will give more accurate information regarding diagnosis than can be obtained by testing the electrical reactions by the customary method. It remains to be seen whether information of clinical value regarding the progress and prognosis of a case can be obtained by study of the changes in the chronaxie.

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[1] THE LANCET, 1921, ii., 1381.

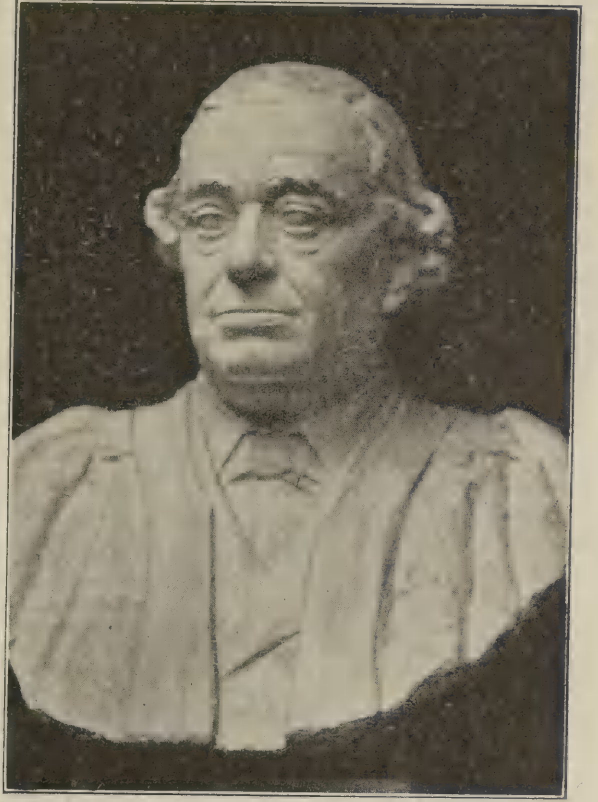
[1] La chronaxie chez l'homme. By Dr. Georges Bourguignon, Chef du Laboratoire d'Electro-radiothérapie de la Salpêtrière. Paris: Masson et Cie. 1923. With 50 figures and 192 tables. Pp. 417. Fr.35.

BLOOD REACTIONS IN ANÆSTHESIA.

IN the October number of the *British Journal of Anæsthesia* is a long paper on Blood Reactions in Anæsthesia, by C. D. Teake, assistant professor of pharmacology in the University of Wisconsin. The general opinion that during anæsthesia there is reduced alkalinity of the blood is confirmed, but Haldane's explanation of this as a result of acapnia is refuted. The conclusion arrived at as regards ether anæsthesia is that the immediate and marked fall in bicarbonate is independent of respiratory variations under the influence of ether, and is not caused by the formation of ketone bodies nor by lactic acid. There may be a ketosis developing several hours after withdrawal of the ether, due probably to deranged carbohydrate metabolism, which is apparently related to the depressing effect of ether on the normal insulin secretion of the pancreas. The interesting practical observation is made that the administration of insulin quickly and effectively clears up post-operative acidosis. Anoxæmia as a factor influencing the acid-base equilibrium can be excluded from ordinary ether and chloroform anæsthesia, but is most important in nitrous oxide and oxygen or ethylene-oxygen anæsthesia. There is always some reduced oxygen saturation of the arterial blood in nitrous oxide-oxygen anæsthesia. The suggestion is put forward, owing to experimental evidence recently obtained by the writer, that the cause of acidosis in ether anæsthesia is related to phosphorus metabolism.

THE LATE THOMAS RICHARD JESSOP.

Lady Moynihan, wife of Sir Berkeley Moynihan, recently unveiled a bust of her father, the late Mr. Thomas Richard Jessop, F.R.C.S., which has been presented to the Leeds General Infirmary by his widow, Mrs. Jessop. The name of Thomas Richard Jessop will long be remembered in Yorkshire, for he was for 33 years, from 1870, a member of the infirmary staff, and was a distinguished link in the long chain of able men who have built up a great tradition of surgery at Leeds. The bust is a strong and dignified piece of work in marble from the hands of Mrs. Quirk. Jessop of Leeds had a career of unbroken professional success. The surgeons of his day were resourceful, self-reliant, courageous, and untiring, for their work ranged generally over their science and art, while Jessop was typical of even an earlier race, for while he was the best operator in Leeds he remained in general practice. Born at Brighouse, educated at Giggleswick and Leeds, Jessop was a true Yorkshire product. After apprenticeship at Brighouse he became a pupil of the well-known Nunnerly of Leeds, and immediately upon qualification became house surgeon to the Leeds General Infirmary. From this post he went as surgeon to the Leeds Public Dispensary, while in connexion with the School of Medicine he was appointed lecturer on practical surgery. When that school was amalgamated with Yorkshire College he became a professor, but throughout the whole course of his professional career he



THOMAS RICHARD JESSOP.

accepted consulting work in medical, surgical, and gynæcological cases without distinction. He was to the end, and so styled himself, "a general consultant." For a long period he was on the Council of the Royal College of Surgeons of England, being senior Vice-President in 1901, in which year he delivered, as the Bradshaw lecturer of the College, a record of his own operative treatment of renal calculus. He was a strong personality, robust in thought, and decided in action, but full of kindliness, and all who knew him admired him for his great gifts. This journal was often beholden to him.

CHRONIC HEPATITIS.

APART from pigmentary disturbances (jaundice) or massive disturbances of conformation, which are usually the result either of acute or of very advanced disease, derangement of the liver produces signs and symptoms of such obscurity that progress in the early diagnosis of hepatic disease is slow. Evidence continues to accumulate, however, which tends to show that inflammatory changes in the liver occur with much greater frequency than has been suspected. This evidence is derived partly from experimental studies in animals, but more especially from the examination of sections of liver tissue removed during operations on the abdominal viscera. We have recently received an interesting reprint of the third series of Beaumont Lectures,[1] which summarises very clearly our present knowledge concerning these pathological processes. The book is in two main sections. Part 1, by Dr. C. G. Heyd and Dr. J. A. Killian, professors of surgery and of biochemistry at the New York Post-Graduate Medical School, deals with the clinical pathology and physiological chemistry of the liver in especial relation to chronic disease of the appendix and gall-bladder. Dr. Heyd calls attention to certain complications occasionally arising after operations on the gall-bladder which are not explicable as due to hæmorrhage, shock, embolism, or peritonitis. He recognises three more or less distinct groups. The first consists of obese subjects, who, after a comparatively simple operation on the gall-bladder, remain in a semi-unconscious condition, and, after a short period of delirium, sink into coma. Examination of the blood and cerebro-spinal fluid of these cases shows no evidence of renal defect nor of cerebral poisoning, and the suggestion is that the state of coma is due to an alkalosis associated with a marked increase in the carbon-dioxide combining power of the blood plasma. The second group includes many patients who have been the subject of long-standing gall-bladder infections, often with previous operations. After two days of satisfactory progress following their operation they become irritable and pass into a state of vaso-motor collapse with cold and sweating extremities. From this state they have often been restored by intravenous glucose administration. Dr. Heyd believes that this complication is due to some pancreatic toxin acting upon a liver whose protective function is temporarily in abeyance. The third group consists of cases with obstructive jaundice in whom operation has relieved the obstruction; at a period of about one week after the operation, at a time when all has appeared well and the jaundice has been diminishing, they have suddenly passed into coma and died, with no evidence either during life or after death of this coma being due to renal deficiency or any of the classical causes of this complication. These cases are believed to be due to the effect of a very slight toxæmia of infective origin acting upon a liver whose function has been materially deranged by long-standing disease. Dr. Killian, in an extensive series of observations has at present been able to discover little tangible biochemical evidence of such disorders of the liver. His studies of the blood-cholesterol, for example, have revealed no excess of this substance in cases of gall-stones unless either pregnancy or obstructive jaundice were present. The nitrogenous constituents of the blood were analysed in another series of cases with hepatic disease, but beyond a suggestive rise in the non-protein nitrogen fraction, nothing of importance was observed. He does, however, lay stress on one laboratory test before operations on the biliary tract—this is the estimation of the alkali reserve of the blood. In some cases the carbon-dioxide combining power of the plasma before operation has been found to be as high as 80 volumes per cent.; in these the post-operative administration of alkalis is strongly contra-indicated and may, indeed, prove disastrous if carried out. The last section of the book deals with the structural changes in the appendix, gall-bladder, and liver of 24 patients of various ages who had been operated on mainly for appendicular inflammation. The evidence of chronic hepatitis in these cases is unmistakable. Peribiliary or interstitial fibrosis in early or late stages was obvious in nearly every case. Inflammation of the gall-bladder was present to some extent in the great majority of cases, though not in sufficient degree to necessitate surgical interference. Prof. W. J. MacNeal, who is responsible for this section, is of opinion that the hepatic inflammation represents the normal physiological protective function of that organ in response to sepsis in the portal region. As to the cholecystitis, he believes that this is the result of infection by the lymphatic system from the liver, though the possibility of direct infection from the bile which is excreting the organisms from the liver remains a second possible cause.

SYPHILIS AND PERMISSION TO MARRY.

THE problem indicated by this heading has long been with us, but new side issues have recently developed in connexion with the latest advances in the diagnosis and treatment of syphilis. We also know much more about the prognosis, the chances of marital infection in the various stages of syphilis, than did an earlier generation. It is interesting for a moment to hark back to the conditions which A. Fournier, a representative of an older generation, considered necessary for a medical man to insist on when consulted about the prospective marriage of a syphilitic. He stipulated for the absence of recent manifestations, an advanced stage of the disease without signs of activity, a considerable interval since the last appearance of symptoms and adequate specific treatment. The modern criteria by which a syphilitic should be judged fit to enter into the bonds of matrimony have recently been discussed by Dr. Marcel Pinard, of Paris, in *Bruxelles Médical* for Oct. 5th. He insists that when syphilis is recent or neglected, marriage almost inevitably entails infection of one partner by the other. When the infection is of old standing, he finds that the chances of one partner infecting the other depend largely on the sex of the partner first infected. If it is the woman who is suffering from tertiary syphilis at the time of marriage she is not likely to infect her husband. But if it is the man who is suffering from syphilis in the tertiary stage at the time of marriage, he will very likely infect his wife through his semen, the uterus, Fallopian tubes, or peritoneum being the site of the primary infection which escapes detection. In such a case the woman's blood may give a positive Wassermann reaction, and, with little or no evidence of primary and secondary lesions, she may develop tertiary manifestations and suffer from aortitis and high arterial blood pressure, as well as passing the disease on to her progeny. Having commented on these more or less general rules with regard to the sex differences of syphilitic infection, Dr. Pinard proceeds to defend the practice, which he has followed since 1918, of giving his consent to marriage only when the employment of every modern diagnostic device has failed to show any sign of the disease. There must be no clinical or serological evidence of syphilis, an examination of the cerebro-spinal fluid must be negative, there must be a negative serological reaction after arsenical reactivation, there must be an interval of a year of absolute latency of the disease since treatment was given for primary syphilis, and this interval must be one of two years if specific treatment was instituted at a later stage. Dr. Pinard has never found this high standard fail him, though he admits that keeping to it may not provide an absolute guarantee that infection will not occur. He is not in favour of relaxing this standard, but if the prospective bride or bridegroom refuses to wait till all these conditions have been fulfilled, he suggests that, as the next best course, the medical examiner should urge the patient to be perfectly candid with his or her prospective partner, so that steps may be taken to continue the cure of the one partner, and prevent the infection of the other. In parts of Scandinavia medical examinations of candidates for marriage have become compulsory, and while Dr. Pinard does not plead for legislation in France in this manner, he considers it desirable that such medical examinations should be a matter of routine, of general custom. He relates many instructive incidents connected with his work as medical examiner of persons about to wed, and one of his points is that it pays the betrothed to be candid with each other before matrimony. We ought not to be surprised by the account given by Dr. Pinard of a man, who confided his secret to his fiancée, a lady belonging to a good provincial family. Her reply was: "Syphilis is no obstacle; I know what it is, father has it." But candour on one side met by ignorance on the other may spell disaster.

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[1] Beaumont Foundation Lectures. London: Henry Kimpton. 1924. 18s.

THE TREATMENT OF FEMORAL HERNIA.

IT is only of recent years that careful follow-up methods have enabled us to arrive at a true estimate of the success of operations for hernia. The optimistic outlook which prevailed received a rude shock during the war, when with many inexperienced operators at work the proportion of recurrences certainly reached a high figure. But that all these relapses were not due to lack of skill in the operators, but were to some extent inherent in the procedures in vogue, seems to be proved by the study of series of cases done in large clinics where the technique employed is certainly not below that standard which is expected from a well-trained experienced surgeon. If such groups of cases are followed up, there is a percentage of recurrence varying from 7 to 10 in inguinal hernia operations upon adults. These results bid fair to be improved upon, as the knowledge of the factors which tend to cause recurrence becomes more widespread. There has been for long a general impression that failure to cure is more likely with a femoral than an inguinal hernia, the belief being held that the rigid margins of the crural ring are more difficult to approximate and keep in apposition. This does not appear actually to be the case, for L. F. Watson[1] finds that recurrence after the operation from below amounts approximately to 4 per cent. in 469 cases. It is now becoming very general in a number of clinics to operate upon femoral hernia by the inguinal route. To T. Annandale must be given the credit for first deliberately attacking the hernia in this way in 1876,[2] but an Italian surgeon, G. Ruggi, in 1892, and G. Lothiessen, in 1898, exploited and popularised the inguinal method. This operation has certain advantages. The neck of the sac is thereby approached higher up and closure of the crural canal from above would seem to be more sure and easy. Nevertheless the figures given by Watson reveal a greater liability to recurrence after the inguinal than after the femoral operation, 4·8 per cent., compared with 4 per cent. Elsewhere in this issue Mr. F. Harvey relates his experience with the operation devised by Roux in 1899, in which the pubic attachment of Poupart's ligament is extended outwards by means of a metal staple. Of 46 cases traced by Mr. Harvey, recurrence only occurred once, giving a rate of just over 2 per cent. This is a strikingly good result and deserves attention as the method is a simple one. It might be thought that there would be objections to leaving a metal staple permanently embedded in the pubes, but it does not seem to lead to any trouble. E. Hey Groves[3] described another method for shifting outwards the inner attachment of Poupart's ligament without tension. His results were equally remarkable, 23 traced cases without a recurrence, of whom three had gone through a pregnancy subsequent to the operation. It would seem that the time has come to review the question of the operative treatment of femoral hernia and particularly to assign the inguinal operation its proper place. It is so attractively conceived and so efficiently designed for achieving its purpose, that surgeons will not feel inclined to abandon it until an investigation of the cases on which the statistics are based has been carried out, or the publication of further statistics confirms the above-recorded results.

THE LATE DR. ALEXANDER LEWERS.

NO words could have been more appropriate for the memorial tablet in the entrance hall of St. Vincent's Hospital, Melbourne, in memory of the late Dr. Alexander Lewers than those which, taken from Dr. Lewers's own writings, have been engraved on a simple brass tablet: "However Untimely the Fate of These and Such as These, Their Effort is Not Vain." Nor could the place have been more fitting, for a large part of the most active portion of his life was associated with the St. Vincent's Hospital, where, as the memorial states, he was senior physician from 1908 to 1922, and where he filled every position of honour, as clinical teacher and lecturer, chairman of the staff, and dean of the clinical school. To his wisdom the hospital owes much. Dr. Lewers received his early medical education at St. Mary's Hospital, London, and was for a time medical officer at Adelaide Hospital. After a post-graduate visit to England, during which he studied dermatology under the late Sir James Galloway and obtained a Diploma in Public Health, he returned to Australia and treated the first case of bubonic plague at the quarantine station at Coode Island. Dr. Lewers, to whose merits we were able to bear testimony at the time of his death some 15 months ago, was editor of the *Australian Medical Journal* for several years and was the Australian correspondent of THE LANCET.

CROWN GALLS.

THE cancer problem, and the problem of neoplastic growths in general with which it is inseparably linked up, has far wider bearings than its pressing relationship to human pathology, and neither the general reader nor the research worker can afford to neglect kindred conditions in animals and in the vegetable kingdom. One of the most interesting phenomena of this nature in the latter is that of the "crown gall." These tumour-like formations upon plants have been largely studied in America and especially carefully described by Erwin F. Smith.[4] It would appear that their bacterial origin is incontestable. From the large nodosities which go by this name, and whose most common site is at the junction of root and stem in plants, an organism may be regularly isolated to which the name of *Bacterium tumefaciens* has been given. This is a small, Gram-negative, motile bacillus which, on inoculation in pure culture, has the effect of reproducing tumour-like masses in a number of vegetable species which are indistinguishable from those appearing spontaneously. The work of investigating these growths has been recently taken up in France by J. Magrow,[5] who has in many directions confirmed the observations previously published in Copenhagen, Prague, and America. By means of a culture of *B. tumefaciens* derived from the stocks of the

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[1] L. F. Watson: Hernia. London: Henry Kimpton. 1924.

[2] Edin. Med. Jour., 1875–76, xxi., 1087.

[3] Brit. Jour. Surg., 1922–23, x., 529.

[4] THE LANCET, 1922, i., 160.

[5] J. Magrow: Recherches expérimentales sur le cancer des plantes, Annales de l'Institut Pasteur, October, 1924.

Pasteur Institute, tumours have been produced in a large proportion of the plants experimented upon, their localisation being either at the junction of root and stem, at the base of a leaf, or in the leaf stalk, according to where the inoculation was made. A considerable variety of plants is susceptible. The growths, which are made up of small imperfectly differentiated cells, are derived from those elements in the plant which are naturally endowed with marked proliferative ability, and the neoplasm when it is once inaugurated pursues a progressive course, infiltrating, compressing, and destroying the tissues, and finally producing in the plant a state of malnutrition or "cachexia." The chief point upon which Mr. Magrow has been unable to confirm other workers' observations is in regard to the occurrence of "metastatic" growths, but he notes that his strain of *B. tumefaciens* lacked pathogenicity for *Anthemis frutescens*, which is the most favourable plant for their observation. It would appear that the several strains of this organism which are in existence vary a good deal in their pathogenic ability. Although readily cultivable from the lesions, the organism cannot be demonstrated with certainty within the growth. This may be due to their being present in the tumours in very small numbers, or to technical difficulties in demonstrating them in vegetable tissues. The whole matter of these growths and their close simulation of malignant disease in man and animals is one of great interest in general pathology and deserves to be widely studied.

PSEUDOMYXOMA PERITONEI.

IN a paper read before the Chicago Gynecological Society, Dr. Emil Ries,[1] professor of gynæcology in the Post-Graduate Hospital and Medical School, Chicago, who reports two illustrative cases which came under his observation in the course of 16 years, states that pseudomyxoma peritonei is a secondary condition, due to escape of gelatinous material from a primary tumour arising in the ovaries, appendix, or both, or more rarely in other organs. The ovarian tumours are always pseudomucinous cystomata in their entirety or at least partially. The appendices from which pseudomyxoma peritonei starts are found to be more or less cystic, often show diverticula, and may contain papillomatous tumours. Previous attacks of appendicitis have been frequently noted in the cases which originated from the appendix alone. Some writers maintain that the pseudomyxoma peritonei originating in ruptured ovarian tumours is much more liable to continue even after careful operation and to cause death, while the pseudomyxoma following ruptured cyst of the appendix is less dangerous. Examples of recurrence and death, however, as well as cases of apparent cure by operation, have been recorded, whichever the original source of the pseudomyxoma may have been. Operative treatment consists in the removal of the original source and the treatment of the pseudomyxoma. Ovarian tumours should be removed whether they are ruptured or not, and since many of these tumours are more or less intraligamentary hysterectomy may also be required. The appendix should be removed whether it is much enlarged or not, whether or not it shows diverticula or forms a ruptured or closed cyst. When it is so firmly imbedded in the gelatinous material that it cannot be isolated, as in a case reported by Hartmann, resection of the cæcum may be required. The results of operation have been good, even though the entire gelatinous masses on the parietal and visceral peritoneum have not been removed. Repeated operations have been performed in a number of cases, and recoveries for longer or shorter periods have taken place. The longest reported time of cure is that of Dr. Ries's first patient, who was alive and well 17 years after an operation at the age of 55 for ruptured ovarian pseudomucinous cystoma, and ruptured cyst of the appendix with papilloma.

Obituary.

SIDNEY JOHNSON TAYLOR, M.D. EDIN., M.R.C.S. ENG.

BY the recent death at the age of 67 of Dr. S. Johnson Taylor, of Norwich, the medical profession has lost an experienced and skilful practitioner, who for a long time played a prominent part as an ophthalmic surgeon, not only in Norwich and the surrounding district in which he practised, but also in the various societies and congresses connected with ophthalmology.

Sidney Johnson Taylor received his medical education at St. Thomas's Hospital, London, and Edinburgh University, and also pursued the special study of diseases of the eye in Vienna. He took his M.R.C.S. in 1878, and his M.B. and C.M. Edin. in 1882, being co-equal in competition for the Ettles Scholarship. He also won the Musgrove Scholarship at St. Thomas's Hospital. In 1922 he obtained the M.D. Edin. He was for a time resident medical officer to the Severn Tunnel Hospital, and subsequently engaged in general practice at St. Servan, near Dinard, in Brittany. Deciding to take up ophthalmic surgery as his specialty, he returned to Edinburgh, worked under Argyll Robertson, and then obtained the post of clinical assistant to the Royal London Ophthalmic Hospital at Moorfields, where he profited from the teaching of Nettleship. Later he settled in Norwich, where his knowledge and skill in dealing with diseases, defects, and injuries of the eye secured him a well-merited reputation. He became a member of the Ophthalmological Society of the United Kingdom in 1889, and for 30 years was a regular attender at its meetings and the contributor of many valuable articles to its Transactions. He was thorough in his diagnostic investigations, well read in the literature of his specialty, and a skilful operator. His genial and considerate nature not only inspired the confidence of his patients, but secured their lasting friendship.

The death of his son, Charles Murchison Johnson Taylor, was his great grief in his later years, and to his memory, as also to that of his own old teacher, Charles Murchison, F.R.S., M.D., after whom the son was named, he last year presented Moorfields Hospital with the sum of £1000 for the endowment of a bed.

THE LATE DR. JOHN ROBSON.—John Robson, M.D., F.R.C.S. Edin., who died in his eighty-second year on Nov. 28th at Guildford, Surrey, where he had resided for some time, was well known in the Rock Ferry district, near Liverpool, where he carried on an extensive practice. He went to Rock Ferry over 40 years ago, and retired from active practice after 20 years' work there. About 30 years ago he lost his two daughters, who were drowned at Corwen.

THE LATE DR. G. D. COMPSTON.—George Dean Compston, M.R.C.S. Eng., of Halton, near Leeds, died on Dec. 2nd in London in his thirty-eighth year. He was the second son of Mr. J. A. Compston, K.C., the Recorder of Leeds. He had been ill for a considerable time and underwent an operation at Hastings last August. After taking his B.A. at Cambridge, he studied medicine at Cambridge and at Middlesex Hospital, becoming M.R.C.S. and L.R.C.P. in 1913. He acted as house surgeon in Middlesex Hospital, as assistant medical officer at the London Fever Hospital, and in Hastings, where he began practice, he held public medical appointments. Later, in Leeds, he served on the staff of the Leeds Women and Children's Hospital. When in practice in Hastings and during the war, Dr. Compston served with the R.A.M.C. with the rank of captain, and after service in Mesopotamia he suffered from severe dysentery. At Cambridge he was distinguished in rowing circles and was awarded a rowing "blue," being cox in the Cambridge boat in 1909. He married in 1914 and leaves a widow and two sons.

THE house and library of the Royal Society of Medicine will be closed from the evening of Tuesday, Dec. 23rd, until Monday morning, Dec. 29th.

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[1] Surgery, Gynecology, and Obstetrics, November, 1924.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

C.—TREATMENT OF TUBERCULOUS PERITONITIS.

TREATMENT in tuberculous peritonitis, as in other tuberculous lesions, tends to become more and more conservative. This follows the acceptance of the theory that in most cases of surgical tuberculosis the disease is a local manifestation of a general systemic infection. A. Rollier considers tuberculous peritonitis to be almost always consecutive to pulmonary, pleuro-pulmonary, or pleural lesions.[1] He is strongly opposed to operation in this disease, on the ground that it "may produce a locus minoris resistentiæ and a depression of general health which not infrequently results in renewed pulmonary activity." Unfortunately, the ideal is not always attainable; operations are performed from time to time either deliberately or accidentally—deliberately in order to evacuate fluid in the ascitic variety or to meet some emergency such as intestinal obstruction in the fibro-adhesive variety; accidentally, as the result of a mistaken diagnosis.

Tuberculous peritonitis requires a more exact classification. A wide distinction may be drawn between primary and secondary conditions. Among the primary can be included the miliary type with ascites and the fibrous adhesive type, which I look upon as a later stage of the ascitic following the absorption of the fluid, a stage of partial cure. These cases are systemic in origin. Among the secondary conditions peritonitis may follow tuberculous enteritis, or sometimes tuberculous salpingitis, ileo-cæcal tuberculosis (the entero-peritoneal type of Hartmann), and the large class of caseous tuberculosis which may be regarded as a late stage of mesenteric gland tuberculosis. It is doubtful whether these secondary infections are systemic at all; they may be looked on as local implantations of tubercle operating through the intestinal tract; especially is this probable in the case of mesenteric gland tuberculosis which is comparable with tuberculosis of the cervical glands. If this view is true it justifies operation in the secondary types, while limiting operation in the primary types to the relief of intestinal obstruction. It is true that cœliotomy has had many successes in the ascitic form, and it may still have its place where the modern conservative methods are not available.

Conservative Treatment of Uncomplicated Tuberculous Peritonitis.

The preliminary examination of cases of uncomplicated tuberculous peritonitis is on the same lines as for all abdominal conditions. A thorough investigation is necessary to exclude sepsis in the nasal passages (rhinitis or sinusitis), in the pharynx and nasopharynx (and this may necessitate the removal of adenoids or septic tonsils), and in the mouth (dental caries). The examination of the lungs is especially important and it is well to estimate the Wassermann reaction. The stools should be investigated for evidence of undigested food and occult blood.

When any septic foci have been removed or excluded, the patients are confined to bed, "simple recumbency" in Sir Henry Gauvain's phrase, or as Rollier suggests in the acute stages, "immobilisation in the dorsal position." The diet should be regulated to avoid all materials liable to irritate the intestine.

Graduated sun treatment as employed at Leysin is then used. This consists in a very gradual exposure to sunlight, the ultra-violet rays of which, while they have very little penetrative power, are strongly bactericidal and in addition appear to increase the power of the blood to destroy disease-producing organisms, at the same time increasing the calcium metabolism. Gauvain's instructions for this treatment are as follows:—

1st day .. .. Expose legs to knees for 5
2nd ,, ... ,, ,, ,, ,, ,, 10
3rd ,, ... ,, ,, ,, groins ,, 10
4th ,, .. Expose legs and buttocks for 20
} minutes hourly for three successive hours.
5th ,, In addition one aspect of the trunk for five minutes.
8th ,, Total exposure for 20 min. hourly for three successive hours.

The exposure is regulated by the amount of pigmentation, it being understood that patients who will not pigment or only freckle, require much more care than those that pigment well. Eventually a total exposure of two to three hours a day may be obtained, the greatest care being taken to protect the head and to prevent blistering. The coincident exposure to cold air increases metabolism, which is still further increased if sea-bathing is added. The very young, and aged and infirm patients, require special care. Rollier says that the sun treatment produces its best results in the ascitic type, but in the caseous type a congestive reaction accompanied by vomiting and fever may result. Gauvain says that uncomplicated cases almost invariably do well, that the fibrous adhesive type often obtains rapid and permanent benefit, and that such complications as intestinal obstruction are very rare at Alton.

X ray exposures may be employed in the absence of sunlight. The abdomen is divided into quadrants, only one being irradiated at a sitting with an interval of five to six days. This treatment is valuable in the fibrous adhesive type, but is of little benefit in acute forms.

Alternatively the *mercury-vapour lamp* may be employed, it being remembered that at a distance of one metre its ultra-violet intensity is over three times that of the sun. This is increased in a hot room and diminished in cold, and erythema is easily produced.

Tuberculin.—Opinions are divided as to the value of tuberculin. Rollier has almost abandoned it, but others use it, though not in acute cases. It is usual to start with a minimal dose, 1/10,000,000 mg., progressively doubled at five-day intervals, till 1 mg. is reached. This dose is then given at fortnightly intervals for a year. If there is no pyrexia the initial dose may be 1/10,000 mg., but it is important to take regular readings of the temperature in the rectum.

Operative Treatment.

Operative treatment of tuberculous peritonitis concerns itself mainly in dealing with complications, of which the most common is intestinal obstruction. From time to time one is called upon to treat the ascitic type, and surgical measures generally meet with immediate success. Operation must be accepted, however, merely as one step in the treatment; the aim is to evacuate a fluid of low bactericidal power in the hope that it will be replaced by a temporary serous effusion of a higher bactericidal power. The operation consists of a cœliotomy, the evacuation of the fluid, the removal of any local primary cause—e.g., appendix or Fallopian tube, and closure without drainage. All ligatures and sutures must be of catgut. In a short series of 17 consecutive cases operated upon by me for tuberculous peritonitis which I have collected for the purpose of illustrating this article, I include two ascitic cases. There were three other cases where miliary tubercles were found during the course of operations done for various reasons, in only one of which free fluid was found. All these five cases were in females and all did well. As to the fibrous and caseous types there were nine cases of intestinal obstruction, of which seven resulted from adhesions and two from intestinal ulceration. Of the seven adhesion obstructions, five occurred in females and all recovered in spite of the fact that intestinal resection was necessary in one case and a lateral anastomosis in another; two occurred in males and both died, one shortly after operation, the other in three weeks, and in both cases obstruction had been present for a long period. The two intestinal-ulceration obstructions were treated by resection, a male in whom obstruction had been present for six weeks dying, a female operated on for acute obstruction recovering. Operation in these fibrous or caseous cases, where obstruction is present, is very difficult. There is the risk of injuring adherent intestine in opening the abdomen, and the most gentle handling is needed in releasing adhesions in order to avoid tearing the gut, an accident which frequently leads to fistula and causes a high mortality. If, in addition, it is necessary to do a resection or a short circuit, the chance of a successful issue is still further reduced. They are operations of necessity and not of choice; they are not done in the hope of curing the peritonitis, but to relieve a complication, and their value must be judged from this standpoint.

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[1] Heliotherapy. Oxford Medical Publications. 1923.

There are two other conditions which may give rise to tuberculous peritonitis secondarily. The first is

Tuberculous Disease of the Mesenteric Glands.

Three stages of development are recognised, a tuberculous enlargement, caseation, and calcification. It is in the stage of caseation that most of the complications arise, the serous covering becoming affected, leading to adhesions, and, if the gland burst, the abdomen may be flooded with caseous material, leading to localised abscesses, or diffuse peritonitis. This is the stage known as the caseous stage of tuberculous peritonitis, really a misnomer, for it is, I believe, a late stage in mesenteric gland tuberculosis, rather than a late stage in tuberculous peritonitis. These conditions are the despair of the surgeon who must, on occasion, operate for the relief of some urgent catastrophe, such as obstruction. Success lies in the early diagnosis of mesenteric gland tuberculosis and adequate treatment.

During the period covered by the series of 17 cases quoted above, I have operated upon 68 cases of mesenteric gland tuberculosis with a mortality of two, both late cases requiring resection. One of these died soon after the operation, the other a few weeks after of pulmonary phthisis. Three cases had intussusception and all did well. The operation consists of a laparotomy in the middle line below the umbilicus. The ileo-cæcal mesentery, a favourite site for these glands, is examined first and then the mesentery of the ileum, it being remembered that the most infected gland may be high up in the root of the mesentery. Attack is directed to the caseating glands, which are deliberately dissected out, the serous covering being preserved as far as possible. There is little, if any, risk of so damaging the mesentery that the viability of the intestinal coil is endangered, but the incision in the serosa must be sutured with the finest catgut after careful hæmostasis to prevent subsequent adhesions. The appendix is removed and the abdomen closed.

Ileo-cæcal Tuberculosis.

Ileo-cæcal tuberculosis in its entero-peritoneal form may also lead to tuberculous peritonitis. This variety is not well suited to operative measures, except in its early stages, and results do not compare with those obtained in the hyperplastic form. In the series of 17 cases there were three successful cases of ileo-cæcal tuberculosis, but in none was the peritoneum much affected. The treatment is a block resection of the cæcum with the lower six inches of the ileum.

H. W. Carson, F.R.C.S. Eng.,
Senior Surgeon, Prince of Wales's General Hospital, London.

Special Articles.

THE EARLY DIAGNOSIS OF ACUTE POLIOMYELITIS.

The early diagnosis of acute poliomyelitis by furnishing the indications for timely treatment is a strong factor in obviating the sequelæ of permanent crippling and disablement that too often follow the disease, but the first indications of poliomyelitis often pass unobserved as the condition is of comparatively infrequent incidence as compared to the commoner infections of childhood. As an aid, therefore, to early diagnosis, the Ministry of Health has issued a memorandum[1] for the use of medical practitioners which sets out, clearly and simply, the chief features of the epidemiology and early manifestations of the disease, as follows.

Features of the Disease and its Notification.

Acute poliomyelitis is an infectious disease which attacks the central nervous system and may give rise to paralysis. In this respect it is comparable with cerebro-spinal fever and encephalitis lethargica. The disease has long been known, under the name of "infantile paralysis," as a form of paralysis of which sporadic cases occur, chiefly in children and less frequently in adults. In recent years it has occurred in epidemic form in America, Australia, and in some parts of Europe. The New York epidemic of 1916 was on a scale of considerable magnitude. A number of local outbreaks have occurred in this country. Polio-encephalitis and poliomyelitis were made compulsorily notifiable in London as from March 13th, 1912.

Pathology.

The virus of the disease is so minute that it passes through the finest filter. It attacks the nervous system causing inflammation of the grey matter of the spinal cord, especially of its anterior cornua. In some cases the brain may be primarily or secondarily affected (polio-encephalo-myelitis). The meninges also may be implicated in the morbid process.

Epidemiology.

Poliomyelitis is most *prevalent* in the summer. It appears to have no special relationship to social or sanitary conditions and often occurs in sparsely-populated districts. Clinical evidence points to an *incubation* period in the disease of four or five days, though shorter and much longer incubation periods are recorded. The disease presents an erratic character as regards *infectivity;* this in part may be due to failure to recognise the mild and abortive cases. In some instances the disease has developed after contact of short duration with a patient suffering from poliomyelitis, and multiple attacks in households are not uncommon. In other instances children have been known to sleep in the same bed with a patient and to escape infection. The *fatality* of poliomyelitis varies within wide limits. Commonly 10 to 12 per cent. of the attacks prove fatal, but much depends on the proportion of mild or so-called abortive cases which are recognised. It is important to isolate all patients suffering from poliomyelitis in the acute stage, whether the manifestation of illness be slight or severe. Prompt action in this respect largely minimises the risk of spread of an epidemic.

Symptomatology.

The early manifestations of poliomyelitis give rise to considerable difficulty in diagnosis at a stage of the disease—namely, before paralysis supervenes, when its identification is of extreme importance. Usually an initial febrile attack occurs, the temperature seldom rising above 102°–103° F. This febrile period is of comparatively short duration, lasting for about two to five days and rarely longer than ten days. A curious hump in the temperature curve, "the dromedary temperature" of Draper, may be observed in some cases. Recrudescence of the fever usually indicates further progress of the disease and paralysis. Commonly there is malaise and drowsiness, sometimes intensified as stupor, accompanied by headaches and occasionally by vomiting; there is often nasal and pharyngeal catarrh or gastro-intestinal disturbance associated with loss of appetite, sickness, constipation, or diarrhœa. Profuse sweating is common; there in no characteristic skin eruption, but eruptions such as herpes zoster, herpes labialis, and erythema are sometimes recorded. The patient is irritable and restless as a rule, especially when roused from somnolence; he may be mentally confused or delirious. Twitchings and tremors are generally observed even in mild cases. Rigidity of the muscles of the neck and spine frequently occurs and the head may be retracted, there may be pain and tenderness of the skin, over the spine and on pressure of muscles and nerves. Retention of urine is common. Convulsions are sometimes met with in young children. Generally, if the patient is carefully watched, an irritative stage (usually indicated by transient nystagmus, twitchings, and paresis of limbs or of groups of muscles) can be recognised prior to the paralytic stage. At this time the knee-jerk may be exaggerated. Definite paralysis, usually of the flaccid type, may follow primary symptoms; it affects one or more groups of muscles, especially of the limbs, but may involve any part of the muscular system. The reflexes are now commonly absent.

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[1] Note on the Early Diagnosis of Acute Poliomyelitis. London: H.M. Stationery Office. 1*d*.

Diagnosis.

In some cases the sudden onset of paralysis is apparent, but in the majority the serious nature of the illness at the outset may be obscure. On the other hand, the implication of the medulla, brain, meninges, or special nerves may give rise to additional symptoms, causing possible confusion: thus in bulbar paralysis speech disturbances are noted. In these anomalous cases confusion in the differential diagnosis between poliomyelitis and encephalitis lethargica or cerebro-spinal fever is apt to occur; the latter error is more frequent when the meninges are affected. The meningeal type may also be confused with tuberculous meningitis or septic meningitis. In such cases, the previous medical history of the patient and the presence of other similar cases in the vicinity, together with examination of the cerebro-spinal fluid, may aid the diagnosis. The symptoms of poliomyelitis before the onset of paralysis have frequently been attributed to influenza. Cases at this stage have also been diagnosed as sunstroke, enteric fever, food poisoning, rheumatic fever, and a number of other diseases. In the mild or abortive cases of poliomyelitis in which no paralysis supervenes the symptoms are similar to those ushering in the graver forms. They are often associated with general or localised muscular weakness or gastro-intestinal disturbance. Such symptoms, if they occur in patients having association with paralytic cases, should arouse suspicion.

Fatality and After-effects.

Death in the acute stage of the illness is usually due to bronchitis or broncho-pneumonia, which supervenes through affection of the respiratory centres. Those who recover are liable to permanent paralysis of particular groups of muscles, and it has been asserted that over half the patients who survive an attack of acute poliomyelitis remain crippled to a greater or less extent throughout life.

The London County Council has for some years past made available for medical practitioners the services of one or other of its medical officers in a consultative capacity in suspected cases of cerebro-spinal fever polio-encephalitis, poliomyelitis, and encephalitis lethargica. When necessary a lumbar puncture has been performed and an examination of the fluid made. It is understood that the services of Dr. J. A. H. Brincker and Dr. J. Graham Forbes are available for this purpose and can be obtained on application to the Public Health Department, County Hall, London, S.E. (Tel.: Hop 5000).

INFECTIOUS DISEASES ABROAD.

Outbreak in Japan of a Disease Resembling Encephalitis Lethargica.

IN Japan a serious epidemic has been described of an affection of the central nervous system, which was first reported unofficially as cerebro-spinal fever, later as encephalitis lethargica, later as a hitherto unidentified disease. The first cases occurred in July in the Department of Toyama on the west coast of the principal island. During August the provinces bordering on the inland sea became severely affected, and during September the disease spread over nearly the whole of Japan. The cases officially reported between August 12th and Sept. 29th numbered 6551 and the case-mortality was stated to be 54·8 per cent. In the provinces most affected the onset of the outbreak was sudden and the curve of cases reached its maximum in the last week of August or the first week of September, thereafter declining rapidly. Of 299 cases notified in the Department of Tokushima 185 were among men, 114 among women, and 62 per cent. of the cases were in persons over 50 years of age. Instances in which more than two cases occurred in the same family were rare. A description of the clinical features of the disease forwarded by the Japanese Health Service to the Health Section of the League of Nations,[1] states that the symptoms of the disease resembled those of encephalitis lethargica, but that the usual eye symptoms were absent. The onset was sudden with high temperature; after one or two days there was loss of consciousness and delirium. Death occurred in from five to ten days, or recovery took place with a fall of temperature and return to consciousness. The cerebro-spinal fluid was clear in all cases examined and no pathogenic organism was found. The incubation period in man was indefinite; in animal experiments it was found to be about three days.

Pneumonic Plague in Los Angeles, California.

A somewhat severe outbreak of pneumonic plague, which was at first diagnosed as "malignant pneumonia," recently occurred in this city. The first death occurred on Oct. 19th, and between that date and Nov. 11th there were 38 cases with 31 deaths, all the cases except four being of the pneumonic type. The area affected is limited to a small portion occupied by aliens in the Mexican quarter of the city; a sanitary cordon has been drawn round it and vigorous measures of inspection, fumigation, and rat destruction are in progress under the supervision of officers of the United States Public Health Service. It is reported that the situation is well in hand, and that there is little reason to fear the development of a widespread epidemic.

MEDICINE AND THE LAW.

VALID CERTIFICATES: A MISUNDERSTANDING CLEARED UP.

AN interpretation of the law, mainly of course for the use of foreign countries, has come before the General Medical Council. A paragraph in the Supplement to the *British Medical Journal* of Oct. 4th stated that instructions had been received from the immigration authorities of the United States that in future persons desiring to emigrate from this country to the United States must be examined by medical practitioners who are members of the British Medical Association. This statement naturally provoked some interest among the members of the medical profession who are not members of the Association, and it was brought to the notice of the General Medical Council.

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[1] Reported in the Monthly Epidemiological Report of the Health Section of the League of Nations, No. 72, Nov. 15th, 1924, p. 673.

A letter was written accordingly to the American Consul, pointing out that the instruction appeared to have been given under a misapprehension, for the only persons legally qualified in the United Kingdom to give valid certificates are those whose names appear in the Medical Register. It was asked in this letter that the attention of the authorities in the United States of America might be drawn to the matter, and steps taken to see that certificates given by registered, and therefore legally qualified, persons were accepted whether they were members of the British Medical Association or not. A copy of this letter having been sent to the British Medical Association with an expression of regret that the attention of the Council had not been called to the matter before the announcement appeared, the Association replied that the action of the American Consulate was entirely spontaneous and was not due to any representations from the Association. It was added that any person or body employing medical practitioners would have complete liberty to employ such practitioners as they thought fit, and that no regulation was known which would prevent the American Government, or any other body, from deciding for reasons which seemed to them good to employ only specified practitioners. The Royal College of Physicians of London also drew the attention of the General Medical Council to the matter, and pointed out that the proposed limitation of the right of giving medical certificates to intending immigrants to the United States to medical practitioners who were members of the British Medical Association involved an injustice to those members of the profession who were not members of the Association by prohibiting them from exercising a branch of professional work. The Royal College suggested that the immigration authorities of the United States should be fully informed of the status of the British Medical Association and of the injury which the proposed arrangement would inflict on medical practitioners in this country who were not members of the Association and who would be precluded from giving medical certificates even to intending immigrants who were their own patients, and also of the consequent hindrance to efficient certification as required by the immigration authorities of the United States. The reply of the American Consul to the General Medical Council on Nov. 3rd made it clear that the situation was the result of a misunderstanding. The authorities in the U.S.A., wrote the Consul, never specified that immigrants from England should be examined by members of the British Medical Association. The only stipulation was that the examiners should be qualified and reliable. He added that it was probable that the British Medical Association inferred from a request sent to it for a list of its members that they only would be permitted to examine such immigrants, but the examination was not limited to such members, and the Consulate-General would be glad to give every consideration to examinations made by "your members" (i.e., presumably all registered practitioners). It was not with any intention of discriminating against these others that a list of members of the British Medical Association had been requested.

STOPES *v.* SUTHERLAND: A PETITION TO THE LORD CHANCELLOR.

The principal judgments delivered in the House of Lords in the final appeal in the action brought by Dr. Marie Stopes against Dr. H. G. Sutherland for libel were published at some length in THE LANCET of Dec. 6th (p. 1192). There has since been received here the copy of a petition, presented to the Lord Chancellor by Dr. Stopes, in which she states that the intention of the jury, as explained to her solicitor, since dead, was to find in her favour and to award damages, and that the jury had been dismissed without having the opportunity to explain their intention to the Lord Chief Justice. The petition then states, "your Lordships, therefore, were not acquainted, as you should have been, with the fact that the main stings of the libel (viz., the very serious charges that the methods used at my clinic are harmful and that my propaganda is criminal) were *not* considered by the jury as being matters of fact, but as among the matters of opinion for which damages were awarded to me: the true facts in the libel being that I did found a clinic and did there give information to the poor." Reference to the judgment (THE LANCET, Dec. 6th, p. 1193) will show that the Lord Chancellor, in his judgment, had no hesitation in treating the two matters mentioned by Dr. Stopes as questions of fact, a point which is for the Court and not for the jury to decide. Clearly, also, the House of Lords did not consider the fact that Dr. Stopes founded a clinic and there gave information to the poor to be a matter submitted to the jury as forming part of the matter alleged to be defamatory.

FRAGMENTS OF GLASS IN FOOD AT A RESTAURANT.

In an action tried recently by Mr. Justice McCardie and a common jury, Mrs. Esther Davis, a telephone operator, was awarded £130 damages, with costs, against Messrs. R. E. Jones, Ltd., of Swansea, proprietors of a restaurant in which the plaintiff ate a meal on New Year's Day. A mince-pie was served to Mrs. Davis, who stated that it contained broken glass which at the time made her gums bleed, and which caused her pain in the chest and abdomen on the following day, since which she had had medical treatment. The claim was based, firstly, on the allegation that the defendants were negligent in sending out to their restaurant a mince-pie containing broken glass, and, secondly, upon a breach of the implied warranty on their part that the mince-pie was reasonably fit to be eaten. No evidence was called for the defence, but it was contended that there was no evidence of danger to life, or proof that the plaintiff had, in fact, swallowed any of the glass. Mr. Justice McCardie, in summing up, directed the jury that there was clearly negligence on the part of the defendants and also a breach of warranty. The question of the amount of damages would be affected if they found that the plaintiff had swallowed some of the glass.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Irish Free State and the Medical Register.

THE licentiates who received their diplomas last week from the Royal Colleges of Physicians and of Surgeons must have been somewhat puzzled to reconcile the statements made to them by the respective presidents. At the College of Surgeons, Mr. Maunsell advised them to make all speed to the office of the Branch Registrar to register their diplomas, lest the Register should be closed against them. "Closed it will be," he went on, "unless a few broadminded statesmen appear before it is too late." On the other hand, at the College of Physicians, Sir William Thompson announced that he had the authority of the Government for saying that negotiations on the subject of the Register were proceeding between the Irish Government and the British Government, and that there was every hope that they would end satisfactorily. As a matter of fact, it is understood that the only difference between the two Governments is on a matter of phraseology in the drafting of the identical legislation which has to pass in both countries. There is every reason to suppose that this will be satisfactorily settled as soon as the legal advisers of Mr. Baldwin's Government have time to look into the matter. There appears to be little justification for the pessimistic utterance of the President of the Royal College of Surgeons, an utterance which has given new material to such newspapers as are trying to scare students from the Dublin schools.

Appointments to the Poor-Law Service.

It has been known for some time that the Department of Local Government and Public Health is dissatisfied with the present method of filling medical vacancies in the public dispensary service. In too many cases the choice is made by the local authorities on political or family grounds, even when more corrupt motives are not at work. The medical profession has long demanded that all medical appointments in the public service should be made as the result of competitive examination, and this proposal has been adopted by every Commission and committee of inquiry which has considered the question during the past 20 years. Either as a compromise with this or as a temporary measure it is believed that the Ministry of Local Government is anxious to take medical appointments out the hands of the local authorities, and to entrust them to an appointments board, which, consisting in the main of medical practitioners, would be competent to assess the claims of candidates from the professional point of view. An opportunity of testing this method of appointment by way of experiment has just occurred in Dublin. The Dublin guardians had been suspended from their duties several months ago by the Ministry and their functions are being performed by paid Commissioners. Three vacancies for medical officers had occurred in the union, and the Commissioners invited the several licensing bodies in Dublin to form an advisory committee by nominating one member each, the chairman of the committee to be the chairman of the General Council of County Councils. The Commissioners bound themselves to accept the recommendations of the advisory committee. The appointments were made recently, and a fairly full report of the proceedings of the Advisory Committee has been published. It is stated that the committee consisted of Sir Arthur Chance (representing the Royal Colleges of Surgeons and Physicians), Prof. A. F. Dixon (Dublin University), Prof. E. P. McLoughlin (National University), Dr. H. W. Mason (Apothecaries' Hall), and Senator P. W. Kenny, chairman. There were 64 candidates for the three vacancies, and by a process of continuous selection these were weeded down to five, who were then personally interviewed. Among the candidates finally selected was one lady. It is further stated that a resolution was proposed and seconded, but ruled out of order, to the effect that a man would be more acceptable to the great majority of Dublin dispensary patients than a woman of equal professional attainments. It is unfortunate that any of the members of the Advisory Committee should have tried to engage this committee in matters clearly outside its terms of reference. Moreover, as all licensing bodies in Ireland are open to men and women on the same terms, it is an anomaly that representatives of some of the licensing bodies should attempt to place medical women at a disadvantage with men in a public service.

The Apothecaries' Hall of Ireland.

A Bill presented by the Apothecaries' Hall of Ireland came recently before a Joint Committee of the Senate and the Dail. The object of the Bill was to empower the Hall to designate its licentiates as "Licentiates in Medicine and Surgery of the Apothecaries' Hall," instead of, as at present, "Licentiates of the Apothecaries' Hall." The Bill was unopposed. After the hearing of evidence the Joint Committee found unanimously that the preamble of the Bill was not proved to their satisfaction.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Prof. J. Bergonié.

Prof. Bergonié, director of the anti-cancer clinic at Bordeaux, whose work in radiology is well known, and who has been seriously ill for some time following the amputation of an arm, as the result of injuries sustained in the course of his radiological work, has recently been awarded, by the decree of the President of the Republic, the insignia of the Grand Cross of the Legion of Honour—the highest grade in that honour. The decoration was handed to Prof. Bergonié by Mr. Strauss, former Minister of Hygiene, in the presence of Profs. Proust and Roussy, of the Faculty of Medicine of Paris; and it bore the following inscription: "Although he was perfectly familiar with dangers of the prolonged exposure to X rays, he devoted his life to the study of their properties, and pursued his researches indefatigably with the unshaken will to benefit science by the discoveries of which he was the heroic victim, in the hope that humanity would enjoy the fruits of his sacrifice." Prof. Bergonié recently made a gift of 100,000 fr. to the Faculty of Medicine of Bordeaux to endow the anti-cancer campaign centre which has been founded there.

Two New Academicians.

Within a fortnight of each other two eminent surgeons, Prof. Félix Legueu and Prof. Jean Louis Faure, were elected members of the Academy of Medicine, and it came as a surprise to many in the medical profession that these two names had not long ago received the honour of inscription on that illustrious roll. Prof. Legueu, who succeeds the late Dr. Jalaguier, was born in Angers (Maine-et-Loire) in 1863. About 12 years ago he was elected to the chair of genito-urinary surgery at the University of Paris in succession to Guyon. His clinic in the Hôpital Necker has been attended by great numbers of students from France and from abroad, and the work of the clinic has been recorded in the *Archives Urologiques*, which Legueu founded. Prof. Faure was elected to the vacancy caused by the death of Dr. Richelot. He was born in the same year as Prof. Legueu, at Sainte Foy-la-Grande (Gironde). During the war he held the post of consulting surgeon to the Fourth Army. Since 1919 he has been professor at the gynæcological clinic at the Faculty of Medicine of Paris, where he has had a large following of students. In addition to his outstanding skill as a surgeon, Prof. Faure possesses great literary talent. He composed the "Hymne à la Paix," and a psychological study "L'Ame du Chirurgien," both of which achieved notable success. Prof. Faure has travelled widely and has done much to maintain the high standard of French surgery in the eyes of the world.

Doctors and Taxation.

Here, as with you, the press in interested at the moment in the income of medical men. In a Bill at present before Parliament there are two clauses which have given rise to comment. The first refers to compulsory keeping of accounts, and the second deals with the control of income-tax returns based on the taxpayer's standard of living. While, for purposes of taxation, commercial houses must furnish a balance-sheet of their income and expenditure, there is no legal obligation at present for any member of one of the learned professions to publish a balance-sheet showing his financial standing. The proposed Bill will make it obligatory in the future for professional men to keep an annual register containing a full statement of sums accruing to them from their professional duties, balanced against professional expenses. This book must be open to inspection at any time by the Tax Commissioners under penalty of a fine. As regards the income-tax, the Commissioner finds that at present it is often impossible to assess the tax on a higher rate of income than that returned by the taxpayer, although such return is obviously not in accordance with the taxpayer's standard of living. The proposed Bill would fix a minimum rate of income, based on the external evidence of the taxpayer's fortunes, as evidenced by the rent of his premises and his general air of prosperity. If the annual return made by the taxpayer falls below this figure, the return will be considered insufficient. In such a case the taxpayer must prove to the Commissioner the exact state of his income, and, if he cannot do so, he will be taxed on the sum assessed on the evidence of material prosperity. The general assembly of the Union of the Medical Syndicates of France, an association which numbers some 16,000, has unanimously passed a resolution that a doctor should not be taxed on the basis of external evidence of wealth, for in many cases these external signs do not correspond to his real position. It is pointed out also that the learned professions, taken together, compose only a very small part of the taxpaying public (hardly 100,000 individuals) yet they pay 48 millions in taxes, as compared to agricultural labourers whose number runs into millions but who nevertheless do not pay more than 42 millions.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

High Hospital Fees and Lack of Clinical Material.

WITHIN the last few days a conflict on important issues has taken place between the Ministry of Health and Prof. Josef Meller, the well-known ophthalmic surgeon, head of the first Vienna eye clinic, arising from certain criticisms expressed by the professor on the methods employed by the administrative staff of the General Hospital in connexion with the payment of the hospital fees by patients. It appears that during one of his regular lectures Prof. Meller declared before his students that he would no longer tolerate the dismissal or non-admission of patients on the grounds that they were unable to pay the rather high fees which are now charged. From the teaching point of view he complained bitterly that clinical material was not available, in spite of his urgent request, because would-be patients as a whole were poor foreigners and could not pay treble the ordinary fees as charged them by the administrative officers; also that patients who had been admitted as third-class patients were forced to pay first-class fees and were thus driven away before they were cured. Naturally such methods would ruin the reputation of the Vienna General Hospital, of which the eye clinic is a part, and would impede useful teaching. Prof. Meller's repeated remonstrances to the authorities had hitherto been of no avail, and so he was forced to turn to the public for assistance in his fight against bureaucratism and "red tape." These accusations caused some consternation amongst the public the officials in the hospital and in the Ministry charged with the control of the hospital public feeling supported the professor. But the affairs. The press took the matter up, and, of course, answer given by the administrative staff and the Ministry was evasive, and did not satisfy Prof. Meller. So he declared that unless definite satisfaction was given him he would resign his post and leave Vienna altogether. The students and the teaching staff of the medical faculty took Prof. Meller's part, and exerted all possible influence to retain him by urging the Ministry to arrange matters in a mutually satisfactory manner. Up to the present, however, this has not borne fruit, and as Prof. Meller has received very flattering offers from a number of American and German universities there is great danger of his leaving Vienna. The attitude of the Ministry shows what kind of spirit prevails amongst our administrative officials in regard to science and teaching.

Cancer and Tuberculosis Mortality Statistics.

The new "Statistical Yearbook of the City of Vienna" contains a report on the last nine years in which the International Bertillon index of ætiology of death has been employed. This is the first report since the war, and is very complete and thorough. The following figures may be quoted. In 1923 there died 25,480 persons in this city—12,756 male, 12,724 female. Tuberculosis claimed 4630 victims, or 18 per cent. of the total deaths; cancer killed 2824, or 11 per cent. The absolute number of deaths has diminished within the last three years, because from 1915–20 the influence of the war was still felt, as well as the disastrous economic conditions. A very instructive series is the following :—

Year	Total mortality.	Tuberculosis mortality.	Year	Total mortality.	Tuberculosis mortality.
1915	37,018	7,810 (21 %)	1920	34,179	7,464 (21·8 %)
1916	37,631	9,651 (25·6 %)	1921	28,297	5,265 (18·6 %)
1917	46,131	11,741 (25·4 %)	1922	30,068	5,552 (18·4 %)
1918	51,497	11,531 (22·3 %)	1923	25,480	4,630 (18·1 %)
1919	40,932	10,606 (25·9 %)			

It appears that the energetic and decided action of the municipal officers of health against tuberculosis is at last effective, as shown by the constant decrease of the mortality due to this disease. As regards cancer similar tables may be quoted.

Year.	Cancer deaths.	Percentage of total.	Year.	Cancer deaths.	Percentage of total.
1915	2846	7·6	1920	2423	7·0
1916	3091	8·2	1921	2618	9·2
1917	3040	6·5	1922	2769	9·2
1918	2672	5·1	1923	2824	11·0
1919	2604	6·4			

Here we find that contrary to tuberculosis cancer is steadily increasing as a cause of death.

Census and Health of Prostitutes.

An exact census of all the women registered at police headquarters as prostitutes is taken regularly every two or three years, and when this fell due a short time ago the medical staff provided for a "health census" also. The number of girls on the list was 1052, against 1287 in January and 1349 two years ago. But it must be kept in mind that at least an equal number may be classed as clandestine prostitutes. In the ten months of 1924, 116 girls had taken out new books; their age was 18–27; no female below 18 is taken on the list. In fact, the majority of the prostitutes are rather older than one should expect, as the age-group of 25–35 years amounted to over 40 per cent. of the total, and from 35–45 years 25 per cent. No more than 10 per cent. were below 20 years, and from 20–25 years the percentage was 16. The remaining 9 per cent. were between 45 and 61 —this being the elderly limit on the list. At the time of the control census, 16 per cent. were manifestly affected with gonorrhœa, 3 per cent with manifest syphilis, whilst out of the total only 2 per cent. had not been proved at some time to have had venereal disease. "Latent" gonorrhœa or syphilis was known to be present in nearly all the subjects. It is interesting to note that the new applicants were also already infected, for no less than 90 per cent. of them required medical treatment. As regards tuberculosis, in quite 28 per cent. the apices were found affected, and in 12 per cent. advanced disease was present, so that the spread of the "morbus Viennensis" by these girls was no insignificant menace.

Can a Woman Doctor Practise as a Midwife?

A curious problem has arisen recently here as the direct outcome of the miserable economic situation of the medical profession. A woman doctor, who had tried without success to earn her living as a general practitioner, resolved to qualify as a midwife by taking the prescribed course at a training centre. Whether she will be allowed to practise under both qualifications is doubtful. It seems rather hard to credit the alleged statement that she was not able to obtain the necessary instruction in the art of the midwife during her career as medical student, and must perforce learn it along with the midwives.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives health statistics of seven administrative counties and the Island of Guernsey for 1923 :—

Name of district.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population. All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Death-rates per 1000 births. Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Derbyshire ..	600,000	21·1	10·7	0·75	1·0	1·8	36	75	5·0
Somerset.. ..	392,300	17·4	11·3	0·90	1·4	1·5	24	46	2·5
Gloucestershire	331,800	17·9	11·7	0·86	1·3	1·6	25	48	4·4
Norfolk	318,970	18·6	11·7	0·81	1·5	1·4	31	58	3·0
Lincolnshire (Parts of Lindsey) ..	256,600	20·3	11·5	0·96	1·3	1·9	30	62	3·1
East Sussex ..	255,998	15·1	11·2	0·91	1·6	1·4	23	45	2·8
Isle of Ely ..	75,250	20·1	12·3	0·77	1·8	1·9	34	66	6·0
Guernsey.. ..	38,200	20·8	14·2	1·60	1·3	1·2	31	73	1·3

Derbyshire.

Dr. Sidney Barwise reports that there have been 1634 cases of small-pox in Derbyshire since 1921 without a single death. There has been no change of virulence during the last four years, and Dr. Barwise assumes that the African or alastrim variety of small-pox breeds true to type. A scheme has now been approved for the provision of 50 beds at Bretby Hall for early bone and joint cases of tuberculosis in children and young adults. Hitherto such cases have been sent to Oswestry with most encouraging results, and the health committee are unanimous in their desire to provide treatment for such cases in their own area at once. Dr. Barwise considers that the results obtained by treating bone and joint cases are to-day the one bright spot in the treatment of tuberculosis. Every form of treatment recommended for pulmonary tuberculosis is carefully investigated in the Derbyshire sanatoriums, but Dr. Barwise feels that if good results are to be secured, the advanced cases must be, to some extent, jettisoned, as we cannot afford to fill the sanatoriums with patients who have no chance of ultimate recovery. Dr. A. Niven Robertson, the tuberculosis officer, gives particulars of the scheme of graduated labour and rest adopted in the sanatoriums, and mentions that the most recent methods suggested by Dr. Leonard Hill for getting the full benefit of fresh air have been adopted. Various records of kata-thermometer readings have been kept since January, 1924. The quartz-lamp treatment has given beneficial effects in glands of the neck, lupus, and the tuberculides. Good results are also obtained by artificial pneumothorax. Two new cases were treated in 1923 and the treatment of five old cases was continued from the previous year. On the other hand, Dr. Robertson records no benefit from the use of Dreyer's defatted vaccine, Raw's bovine vaccine, pneumosan, Spengler's I.K., O.T. inunctions on the lines suggested by Sir R. W. Philip, and Paget's nasal B.E. method. Dr. Robertson thinks that these remedies, like sodium morrhuate, collosol calcium, Yadil antiseptic, Koch's tuberculins, and the host of other tuberculins, will probably pass into a deserved oblivion.

Dr. Barwise deals at length with the question of goitre. He points out that the disease is usually prevalent in mountainous districts at a distance from the sea. He does not find that goitre is more prevalent in the districts of Derbyshire supplied with limestone water than in the districts supplied by moorland surface water, and water from the coal measures, and the Bunter sandstone. The relation between a deficiency of iodine and the occurrence of goitre is thoroughly discussed. The good preventive results obtained by the administration of iodine in Switzerland are mentioned, and figures quoted for the canton of St. Gallen showing that during the last three years the percentage of goitre among the school-children has decreased from 87·6 to 13·1, following the use of chocolate tablets containing an organic form of iodine. Dr. Barwise mentions the three ways in which the problem may be tackled. First, by the iodisation of the water-supply as in Rochester, U.S.A.; secondly, by the use of iodised salt; and thirdly, by the use of iodised sweets or chocolates. He emphasises the fact that the problem is much more than the prevention of simple goitre and implies, in addition, the control of various forms of physical and mental degeneration, such as cretinism, mutism, and idiocy, dependent upon thyroid insufficiency.

Dr. Barwise also thinks that the freer use of iodine in Derbyshire would lead to a greater freedom from infectious complaints and an improvement in the general health. He sums up the situation by saying that the time has now arrived when "Derbyshire neck" can, by simple procedure, be made a thing of the past.

During the first six months of 1924 there was a great increase in the number of cases of encephalitis lethargica. Thus, up to the end of June 64 cases had been notified as compared with an average of about ten for the three preceding years. The present condition, says Dr. Barwise, is serious, both on account of the 48 per cent. case-mortality and the after-effects on the moral character and physical condition of survivors. Dr. Barwise points out that the technique in the treatment of syphilis has been much simplified by the substitution of intramuscular for intravenous injections. In consequence he is more hopeful as to the future, as syphilis can now be more readily treated by the general practitioner.

Dr. Barwise feels sure that the Milk and Dairies Amendment Act, 1922, has acted as a stimulus to the production of cleaner milk, although no work has been done in the county directly under the Act. During the present year the agricultural committee have offered prizes for a clean milk competition and details of the tests devised for the competition are given. During 1923, 282 mixed milks were examined for the presence of tubercle bacilli, and 22, or 7·8 per cent., were found to be infected. The report concludes with health notes drawn up at the suggestion of the Derbyshire Insurance Committee.

Somerset.

Dr. William G. Savage reports that in April, 1923, the Ministry of Health constituted the county council the authority for providing isolation for small-pox in the administrative county, excluding the boroughs of Chard and Yeovil and the rural district of Chard, which already possessed accommodation for small-pox. The county council have obtained one site for a small-pox hospital for the northern part of the county at Chew Magna and a second site at Cossington for the southern. On the latter site an eight-bed small-pox hospital and a motor ambulance have been provided, on the northern site as yet only a water-supply. It is intended to use the small-pox hospital for isolated cases or for the first few cases of an epidemic and to provide additional accommodation on the two sites as needed. Only two cases of small-pox were notified during the year; one was not diagnosed until he had left the county and the other was treated at home. There has been a noteworthy decline in the deaths from measles, especially in the last two quinquennia. Dr. Savage attributes this, in part, to educative public health work. There are two lines of attack—namely, the effort to secure postponement of the disease, and secondly, the instructions of the parents of patients as to the dangers of neglect. The county health visitors have worked on these lines since 1917.

Dr. Savage draws a contrast between the decline in the death-rate from pulmonary tuberculosis during the present century and the failure to decline of the death-rate from non-pulmonary tuberculosis during the same period, and says the contrast is hardly to be wondered at seeing that a considerable proportion of non-pulmonary tuberculosis is due to milk and that nothing is being done to deal with this source of infection. During 1923 the deaths from pulmonary tuberculosis were 23 less than in 1922, whereas the deaths from non-pulmonary tuberculosis were 11 more. The county council are, however, beginning to take active steps with regard to the milk-supply, and are now empowered by the 1922 Act to take over, with the approval of the Ministry of Health, the duties of a defaulting local authority. Dr. Savage has drawn up a milk report score-card, mainly with the idea of educating the milk-producers and purveyors throughout the county. Work under the various Milk Orders has never been properly done in the past, he says, and has been largely a farce. The authorities vary very much now in the zeal and thoroughness with which they undertake the work. During the present year a number of demonstrations on the production of clean milk have been given, with the help of the agricultural committee and the Agricultural Institute at Cannington, and have undoubtedly done good. It is also proposed to hold an extensive clean milk competition. Dr. Savage would like to see the principle adopted that the agricultural department of the county council should concern itself with raising the standard for clean milk production and that the public health inspection side should especially deal with the minority of very neglectful milk-producers. He does not think that the production and sale of graded milks will make much headway until further education of the consumers has been effected. The county council has suggested to the local authorities that no purveyor of milk should be registered unless he has efficient means for cleansing his vessels by steam or boiling water, a suitable place for storing his milk vessels, and a suitable place for storing his milk.

Dr. Savage reports that there are still a good many rural parishes and some larger urban areas with an insufficient or unsatisfactory water-supply. Further steps were taken during the year to compel the owners of milk depôts to cease the pollution of streams with milk washings. It is a much more difficult matter, Dr. Savage points out, to secure a satisfactory remedy for pollution by whey. An analysis of the Census figures of 1911 and 1921 indicate a definite deterioration of housing accommodation. In addition to the scarcity of houses, there is great difficulty in getting repairs carried out, partly owing to the shortage of skilled workers and partly owing to the low rentals obtainable. Dr. Savage urges the importance of town-planning, especially for seaside resorts, and points out that every urban area with a population over 20,000 must prepare a scheme by the end of 1925. The medical officer of health of Minehead (population 5181) has drawn attention to the need for a comprehensive scheme for his district.

Gloucestershire.

Dr. J. Middleton Martin states that the outbreak of small-pox which began at the end of 1922, persisted in one part of the county until May, 1924. The total number of cases reported was 419, and there was one death. During 1923 the public health committee decided to undertake, with the assistance of the National Milk Publicity Council, a milk campaign. The campaign has been carried out during the present year, and was inaugurated, by a meeting of all interested, in the Shire Hall in April, 1924. This has been followed by addresses in the schools and to various organisations, such as girl guides, boy scouts, and women's institutes, by demonstrations on the production of clean milk at various farms, and by public meetings in the larger centres. A clean milk competition is to be held during the winter. The Gloucestershire scheme for the extension of medical services is making smooth progress. It is gradually enlarging its scope so as to cover the whole administrative county, and orthopædic treatment has now been added to the services available.

Norfolk.

Dr. J. T. C. Nash would like to see all forms of tuberculosis treated under one administration at Stanninghall by the addition of an admission block. If this were done a resident medical superintendent and a larger nursing staff would be necessary, but against this there would be a saving of the expenditure at present incurred in sending patients away to other institutions. He thinks surgical tuberculosis could be treated at Stanninghall by calling in the aid of the surgical staff of the Norwich Hospital, or that it might be preferable to have an ad hoc institution for the treatment of all forms of crippling. Dr. Nash points out that most of the houses built during the last few years are out of reach of the slender resources of the agricultural labourer. A considerable number of old railway carriages are being converted into dwellings and there is much to be said, he thinks, for this cheap substitute for ordinary houses, when the cost of building is prohibitive and the shortage of houses acute; but sanitary authorities will need to ensure that a wholesome water-supply is available and that no nuisance is created.

Lincoln: Parts of Lindsey.

Dr. R. Ashleigh Glegg reports that the little children have suffered from the cutting down of the milk grants. This is to be met by raising the income limit to the level of 9s. per head for families with one child only and by the allowance of milk at below cost price in necessitous cases for infants up to 3 years of age. There is a need for the increase of the dental staff and a recommendation for the appointment of a third dentist by the education and health committees jointly is under consideration. The county council acts as isolation hospital authority for the north of the county, but the proposal to erect a hospital at Brumby was rejected by a small majority, and Dr. Glegg strongly urges the council to reconsider its decision. Branston Hall, a large mansion, situated about four miles from Lincoln, with 100 acres of park and gardens, was purchased by the council two years ago for use as a sanatorium. It was intended to provide accommodation there for the three administrative counties of Lincolnshire and the borough of Grimsby, by using the hall for women and children and by erecting a pavilion for 50 men. The Ministry of Health agreed to the proposal in May, 1921, but two months later asked the council to postpone the erection of the pavilion on the grounds of economy. The hall was opened for the reception of women and children on Jan. 4th, 1923. There are five shelters available for women and accommodation is provided for 35 women and 35 children. Dr. Glegg points out that there is also great need for a hospital for advanced cases and for the provision of treatment for bones, joints, and glands. In view of the half-hearted way in which many of the district councils are dealing with housing difficulties, Dr. Glegg thinks the county council should erect some good houses to be let to families attacked by tuberculosis at rentals similar to what they are at present paying for the insanitary and overcrowded dwellings which many of them inhabit.

East Sussex.

Dr. Alex. G. R. Foulerton says that an adequate remedy for the continuing shortage of houses is not likely to be found by the local sanitary authorities. Most of the additional accommodation provided so far has been the result of private enterprise, and it is to subsidised private enterprise that he looks for improvement in the future. Up to the present maternity beds have been provided at the Brighton Women's Hospital and the Crowborough Cottage Hospital. It is hoped that during the current year additional beds will be secured for the use of the county at the recently opened maternity home at Hastings. The cases for which the committee endeavours to provide hospital treatment are: emergencies during confinement, cases where difficulty is apprehended during pregnancy, cases where home conditions are unsatisfactory, and cases where the woman is living in a remote part of the county.

Isle of Ely.

Dr. J. Pixton Walker tells us that at the recent Census the Isle of Ely had a higher proportion of agricultural workers than any other portion of England and Wales—namely 481 per 1000 occupied males. There are clinics for tuberculosis at Ely, March, and Wisbech, but there is no hospital or sanatorium in the administrative county. The council reserves four male and one female bed at Ipswich sanatorium. It has not been considered advisable to increase this number of beds, because it is found advantageous for climatic or other reasons to send tuberculosis cases to hospitals or sanatoriums in various parts of the country. Venereal diseases are treated at Addenbrooke's Hospital, Cambridge, and rail fares are paid by the council for necessitous cases. Several districts in the county have not made any hospital provisions for small-pox. Ten cases of typhoid fever occurred in the borough of Wisbech, but no cause could be assigned for them.

Guernsey.

Dr. H. Draper Bishop states that the chief industry of the island is the growing of tomatoes, grapes, and other fruit, vegetables, and flowers, chiefly under glass, for export. Another important industry is the export of granite for road-making. During 1923 19,241 tons of tomatoes, 1619 tons of flowers, 1675 tons of grapes, 2230 tons of vegetables, and 185,740 tons of granite were exported. A third industry is the rearing of Guernsey cattle for sale in England and the U.S.A., and these cattle are highly prized not only for their rich milk, but "above all for their freedom from tuberculosis." The water-supply of Guernsey, derived from deep wells, is the property of the Government of the island. The average yearly hours of sunshine from 1903 to 1922 were 1902·8 hours, and during 1923 the record was 1893·4 hours.

Dr. Bishop comments on the unusually high death-rate from tuberculosis during the year, but the average for the years 1906–22 is also higher than one would expect in an island so favourably situated as Guernsey. Dr. Bishop, however, points out that all is not well with regard to housing matters. Accommodation was provided for 18 families during the year and "the States have realised their great responsibilities in the matter and shown an earnest determination to improve the home conditions of those unfortunate people who are now living under conditions most prejudicial to their well-being." Diphtheria, which has been prevalent recently, was less prevalent than in the two preceding years. As the result of a fatal case which was overlooked until a few hours before death, eight cases were notified from one family which was living in most insanitary and overcrowded conditions.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 29TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 122; scarlet fever, 2294; diphtheria, 1092; enteric fever, 59; pneumonia, 1193; puerperal fever, 47; cerebro-spinal fever, 8; acute poliomyelitis, 20; acute polio-encephalitis, 2; encephalitis lethargica, 52; continued fever, 1; dysentery, 21; ophthalmia neonatorum, 113. There were no cases of cholera, plague, or typhus fever notified during the week. Of the cases of small-pox, 12 were notified from the county of Chester (Dukinfield 8, Stalybridge 4), 54 from Derbyshire (Derby 37, Bolsover 4, Chesterfield 4, Chesterfield R.D. 9), 16 from Yorks. N. Riding (Middlesbrough 15, Eston 1). Six of the cases of dysentery were notified from ports (Barry 5, Plymouth 1), the remainder from Woking 8, Bristol 4, Alfreton (Derby), Southall-Northwood, and Wallsend 1 each.

Deaths.—In the aggregate of great towns, including London, there were 2 deaths from enteric fever, none from small-pox, 8 from scarlet fever, 20 from diphtheria, 57 from measles, 67 from influenza. In London itself the deaths from diphtheria numbered 8, from infantile diarrhœa 23.

THE GENERAL MEDICAL COUNCIL.

AT the concluding sitting of the winter session of the Council on Friday, Nov. 28th, it was announced that the Registrar had been directed to restore to the Medical Register the names of Charles Harold Bennett and David Arnold Chaning Pearce. At the same sitting the reports of a number of Committees were received and approved.

Public Health Committee.

This Committee reported that most of the licensing bodies which grant a diploma in public health had complied with a request to submit copies of their new regulations. The Committee were satisfied with the majority of the answers received; in other cases they had arranged to address inquiries to certain licensing bodies. When answers had been received to these inquiries, the Committee would submit a report to the Council.

Pharmacopœia Committee.

This Committee reported that the number of copies of the British Pharmacopœia, 1914, sold in the year ending Nov. 24th, 1924, was 2279, practically the same number as in the preceding year. The total number sold since the date of publication was 48,067. The stock remaining on hand was reduced to less than 900 copies. The Committee was authorised to issue a further impression of 5000 copies, taking the opportunity to make any necessary typographical corrections. Under certain reserves, the British Government had decided to send delegates to the proposed International Conference on Unification of Formulæ, to be held at Brussels in 1925, and Sir Nestor Tirard had been nominated to attend on behalf of the Council.

Education Committee.

This Committee had considered the inclusion of parasitology in the medical curriculum, and the matter would be brought up for further consideration when the next reprint of the resolutions of the Committee was made. Request had been received from the University of New Zealand that the Council would consider favourably the substitution of an accrediting system in lieu of the matriculation examination as the qualification for entrance to the University. The Committee resolved that in each case it would have to be shown that the New Zealand certificate had been accepted by one of the Universities in this country. Satisfactory evidence as to visitation having been received, Christ's Hospital was added to the list of institutions recognised by a licensing body, and approved by the Council. The Registrar reported that, since May last, the registration of 97 medical students had been antedated in accordance with precedent. Of these, 49 were registered in England, 43 in Scotland, and 5 in Ireland. The registration of 41 dental students had also been antedated.

Examination Committee.

Since May members of this Committee had visited the intermediate (anatomy and physiology) examinations of several additional bodies. The Universities of Oxford, Leeds, Liverpool, Bristol, and Wales, and the Apothecaries' Hall of Dublin had not yet been visited, but the Deans of their Faculties of Medicine and a member of the Council, Dr. Magennis, had supplied information showing the amount of time allotted by each of the licensing bodies to the written, oral, and practical examinations on the subjects concerned. This return shows that the amount of time allotted to the written examination in anatomy varied between two hours and six hours, when two papers were set, and to the oral and practical examinations from ten minutes to three hours. The length of the written examinations in physiology varied from one and a half hours to six hours, while the oral and practical sections of histology, biochemistry, and experimental physiology were together allotted in one case as little as ten minutes and in another 11 hours. Attention was drawn to the fact that No. 6 of the Council's recommendations—viz., "Except in subordinate parts of the examination there should always be two examiners participating when a candidate is undergoing any kind of oral examination," was not strictly observed by all the bodies. At a previous meeting of the Council the Registrar had been directed to ask the bodies whether they did or did not take into consideration class work and class records. Most of the bodies had now replied. The English Conjoint Board, the Apothecaries' Society, the University of Cambridge, the University of London, the University of Birmingham, and the Scottish Conjoint Board answered in the negative. Affirmative replies came from the Universities of Durham, Liverpool, Leeds, Sheffield, Glasgow, Aberdeen, St. Andrews, and Dublin. The University of Oxford had the matter under consideration; in Manchester class work was considered in certain subjects but not all; in Edinburgh only when there was doubt as to whether candidates should pass or fail. The National University of Ireland reported that it had been adopted in Dublin, but in Cork only in the border-line cases.

Dental Education and Examination Committee.

A report on the examination of the Royal College of Surgeons of England had been circulated for the information of the Council. The only remaining reports to come in were those of the Royal College of Surgeons in Ireland, the Universities of Durham, Birmingham, St. Andrews, Sheffield, Belfast, and the National University of Ireland. With the exception of Birmingham these have all been inspected, but the bodies concerned had not yet supplied their observations. The inspector was being asked to make a general report on the result of his inspection for presentation to the May session. In view of the amended recommendations for the dental curriculum the Committee was communicating with all the colonial and foreign recognised qualifying bodies to ascertain if their requirements had been brought into line with those of the Council.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. J. D. S. Milln is placed on retd. list with rank of Surg.-Capt.

ROYAL ARMY MEDICAL CORPS.

Col. R. J. W. Mawhinny, late R.A.M.C., having attained the age for compulsory retirement, is placed on ret. pay.

Lt.-Col. and Bt. Col. G. J. A. Ormsby, from R.A.M.C., to be Col., vice Col. R. J. W. Mawhinny, to ret. pay.

ARMY RESERVE OF OFFICERS.

Lt. F. W. Oldershaw, late Serv. Bns., Lincoln. R., to be Lt.

TERRITORIAL ARMY.

The King has approved of the following appointments:—To be Hon. Surgeon to His Majesty: Col. F. Kelly, in succession to Col. J. Clay (retd.). To be Hon. Physician to His Majesty: Col. A. B. Soltau, in succession to Col. C. P. Oliver (retd.).

ROYAL AIR FORCE.

The undermentioned are granted short service commissions as Flying Officers: W. A. Beck and J. Parry-Evans.

Correspondence.

"Audi alteram partem."

THE ALLEGED STERILITY OF PRESENT-DAY BACTERIOLOGY,

To the Editor of THE LANCET.

SIR,—Since the recent developments in the teaching of bacteriology in this University have been referred to in the correspondence under the above heading, and in the address by Prof. A. E. Boycott which was its origin, I should like to remove any possible misunderstanding of our present arrangements, or of the ideas on which they are based.

Medicine is the mother of the sciences, and her fecundity can hardly have been surpassed by the old woman who lived in a shoe, whose embarrassments she shares. Bacteriology is one of the youngest of the brood, but no one can question its parentage. I am sure that Prof. Boycott does not wish to see the baby abandoned on the doorstep of the botanical department. He is simply calling attention to the fact, so often overlooked by parents, that the child is growing up. If I read his address aright, I take it that he is suggesting that bacteriology is based on too narrow a foundation, and that it is unlikely to develop healthfully until that foundation is broadened. He suggests that there is need for a study of bacteria as living things, regarded as a whole, and not particularly from the point of view of their interference with man and his domestic animals, or with his commercial pursuits; for any suggestion that bacteria are to be studied in the curious vacuum depicted by Prof. J. C. G. Ledingham, I have searched in vain. Prof. Boycott seems to think that one of the most convenient homes for bacteriological study of this type would be in, or in close association with, a department of botany. In both conclusions I find myself in close agreement with him, but I do not think, nor I believe does he, that the matter ends there.

That very much would be gained by a purely botanical study of bacteria I have no doubt at all, and if botanists would extend their activities into this field I believe that all present-day bacteriologists would wish them well, and wait with some eagerness for the results. But most of us, who have entered the bacteriological field by the medical road, have no wish to forget our past journey; indeed, many of us would be ill-equipped for those very studies in which the botanist would excel. Prof. Boycott's address was given at the opening of a new institute of pathology, and it was, I think, clearly in his mind that the study of infectious processes was likely to be a serious loser by our inadequate knowledge of many of the fundamental facts about bacteria, on which such study must be based. That there is, in fact, an urgent need, especially perhaps in this country, for a broadening of the basis of bacteriological training will hardly be denied. For emphasising this need, I feel that all of us who are interested in the welfare of our science owe Prof. Boycott a debt of gratitude.

I do not think that the following propositions will be denied by any of your correspondents: (1) That the training in bacteriology given in the course of the medical curriculum is, and must remain, too incomplete and too specialised to form any sound basis for a bacteriological career. (2) That while the student, in his later years or after qualification, can readily obtain further training in bacteriological methods, in the laboratories attached to our teaching hospitals, such training is, quite rightly, mainly confined to bacteriology in its immediate relation to human disease. (3) That, if anyone wishes to take up any branch of bacteriology as a serious study, he should be given facilities for obtaining an adequate training in the general principles of the subject.

There are two obvious ways in which this object can be gained. Bacteriology can be given a place among the subjects to be studied by a candidate for the B.Sc. degree. This method has obvious advantages, and has been adopted at several universities. A special diploma can be granted, after an adequate course of study and an adequate examination test. This method has the disadvantage that the training cannot be so thorough as in the case of a course for an honours degree. It has the advantage that it is open to post-graduates, and is therefore available to those who are attracted to bacteriological work late in their university career. It is this latter method which we have adopted here in Manchester. The course for the diploma extends over a full academic year, and its essential basis is a thorough study of representatives of all the more important bacterial groups. The successful organisation of this part of our course has been rendered possible by the existence of the national collection of type cultures, in connexion with which we all owe so great a debt to Prof. Ledingham. In addition to this general foundation, each student must take up two or more special branches of bacteriology, adapted to the requirements of medical or non-medical study. We believe that, in this way, it will be possible to turn out students with a sound, if elementary, knowledge of the general principles of bacteriology, of the general characteristics of the more important bacterial groups, and of bacteriological technique.

That the provision of such a basis for their future work will be no small advantage, this correspondence has, I think, already demonstrated.

I am, Sir, yours faithfully,
W. W. C. TOPLEY.

Department of Bacteriology and Preventive Medicine,
University of Manchester, Dec. 5th, 1924.

THE STATUS OF PATHOLOGY.

To the Editor of THE LANCET.

SIR,—I was glad to see that Prof. A. E. Boycott in his address at Montreal advocated the recognition of pathology as a branch of natural science as I have been advocating this for 25 years. It is not to the credit of our universities that they refuse this recognition, while many of them are only too ready to exploit the commercial possibilities of pathology as a source of income. Would Dr. Boycott use his influence with the Royal Society in this matter and also in getting the Pathological Society of Great Britain and Ireland included in the official list of scientific societies? At present, I believe, it is not included. Prof. R. T. Hewlett states that bacteriology is recognised by the London University as a science. If bacteriology is so recognised why not pathology? Some universities recognise that heterogeneous mixture known as public health as a subject for science degrees!

I am, Sir, yours faithfully,
CHARLES POWELL WHITE.

Manchester, Dec. 8th, 1924.

THE EFFECT OF SPLENECTOMY ON THE PRODUCTION OF EXPERIMENTAL PURPURA.

To the Editor of THE LANCET.

SIR,—Dr. Sutherland takes me to task for having gone beyond my experimental evidence in concluding that "Splenectomy cannot be relied on to give any but temporary relief in the treatment of purpura hæmorrhagica." On the whole, I am forced to admit the justice of his criticism, but that my conclusion is as groundless as his letter would make it appear I am not prepared to concede. We are still ignorant of the pathogenesis of purpura hæmorrhagica, but there s reason to suppose that it is produced by the action of some toxin on the platelets and thrombopoietic tissue. The occurrence of purpura, associated with a thrombopenia, in acute infections and the experimental production of purpura in animals by means of bacterial toxins, such as diphtheria toxin, support this contention. Presumably this toxin is the product of some focus of infection, which may be situated in the spleen, but there is no reason to suppose that it is invariably so located. Should the sole toxic focus be in the spleen, then I should expect splenectomy to effect a permanent cure. On the other hand, should the focus be located elsewhere or should there be multiple foci, in the spleen as well as in other tissues, then the effect of splenectomy would be merely of a temporary nature such as I was able to demonstrate experimentally.

Briefly, splenectomy is effective in the treatment of purpura hæmorrhagica not because of the removal of the spleen qua spleen, but because it removes the toxic focus. That this is not pure hypothesis is borne out by clinical experience. Kaznelson himself admits that there are cases of this condition in which splenectomy cannot be expected to effect a cure, and one, at least, of the American cases relapsed after a temporary amelioration. Of course, it might be argued that our insufficient knowledge leads us to group together under the term purpura hæmorrhagica cases which are essentially different in their pathogenesis, and that only those cases which are permanently benefited by splenectomy are really entitled to this term. This is more or less the attitude adopted by Kaznelson and he has produced evidence in support of this contention.

This question, however, still requires elucidating, and it will be mainly from a detailed study of clinical material, including an examination of the spleens removed by the surgeon in so-called cases of purpura hæmorrhagica, both from the histological and experimental point of view, that a correct understanding of these conditions will be arrived at.

I am, Sir, yours faithfully,
London, Dec. 8th, 1924. S. PHILLIPS BEDSON.

THE CLINICAL SIGNIFICANCE OF CONSTIPATION.

To the Editor of THE LANCET.

SIR,—The letter by Dr. E. G. March in THE LANCET of Dec. 6th proves conclusively that stasis and toxæmia cannot be gauged by the number or consistency of the stools. Bismuth X ray examinations show that a patient may have one, two, or more evacuations daily, and may nevertheless harbour stagnant fæces for weeks. Decomposing masses accumulate in the cæcum and ascending colon where they act as irritants and set up catarrh of the mucous membrane—colitis. Fæcal material is carried through the irritated bowel in small quantities mixed with mucus till enough has accumulated in the pelvic colon and rectum to cause an evacuation. There may be several evacuations, but nevertheless the cæcum remains packed, the ileum is unable to propel its contents into the tensely filled cæcum, and the lower ileal coils become a cesspool teeming with micro-organisms which set up intense toxæmia. This state of affairs exists in thousands of our fellow creatures who, consequently, are living on the verge of a breakdown. Not to mention the serious general manifestations of neglected stasis, the local breakdowns in the alimentary tract include such familiar conditions as appendicitis, gallstones, gastric and duodenal ulcer, and, worst of all, cancer. To the unobservant these troubles seem to come as "bolts out of the blue," for many of us accept as normal a state of things which the X rays and the laboratory prove to be highly and dangerously pathological. While admitting, however, that a person whose bowels act only once a day may be less diseased than one who has several daily evacuations, I do not regard "once a day" as the ideal; thrice daily (after meals) should be attained by persons living an active, hygienic life, eating natural "live" food, and adopting the natural squatting posture for defæcation. (THE LANCET, 1923, i., 432.)

I am, Sir, yours faithfully,
ALFRED C. JORDAN.

Upper Wimpole-street, W., Dec. 6th, 1924.

A CASE OF INSULIN POISONING.

To the Editor of THE LANCET.

SIR,—The following case may be of interest to your readers.

Mr. X, aged ?, had been taking 20 units of insulin three times daily for months. He had several times experienced warning symptoms after the midday dose, a feeling of apprehension, weakness, sweating, tremor, and an "all-gone" sensation in the stomach. He had not reported these warnings to his doctor, nor had he ever taken sugar for them. On Nov. 29th he remembers taking this dose as usual at 12 noon, but nothing subsequent to this. At 12.30 he was found by his relatives in a state of coma and sent into this hospital. I saw him at 3.45 P.M. and he was then still comatose; every muscle in the body rigid; feet and legs extended and immovable, like bars of iron; extensor plantar responses in both feet; patellar clonus; pupils neither dilated nor contracted, and responsive to light; breathing very deep and irregular, and a full bounding pulse. The facial expression was most remarkable, being now one of intense effort, now of extreme fear. His arms and trunk were in constant motion, the actions being those of tremendous effort, the movements slow and every muscle standing out.

He was catheterised to exclude the possibility of diabetic coma (I had only a vague history), and then given adrenalin ♏v., and in ten minutes another ♏vii. Improvement commenced immediately after the second dose, the first sign being relaxation of the overacting muscles; the breathing then became quieter, and the expression changed to that of one waking from a strange sleep. Within ten minutes the mind became clear, and he asked where he was. From this point he made an uninterrupted recovery.

The interest of this case seems to lie in (1) the physiological expression of hypoglycæmia simulating the response of the body to some great emergency—e.g., the muscular action, the deep respiration, the full pulse, and the emotional expression. (2) The length of time which a state of hypoglycæmic coma can last, untreated, and recover rapidly and completely—four hours in this case. (3) The action of adrenalin is confirmed. (4) The occurrence of both this and the warning attacks after the midday dose, just when the action of the morning dose is at its maximum (four to six hours). This would tend to show that a twice daily injection is better and safer for patients giving themselves their own injections. (5) The close resemblance of the spasm in this patient to that observed in frogs with experimental insulin poisoning by Huxley and Fulton (*Nature*, Feb. 16th, 1924).—I am, Sir, yours faithfully,

ROBERT V. B. EMMONS, M.B. Oxf.,
Dec. 5th, 1924. House Physician, Radcliffe Infirmary, Oxford.

MEASLES TWICE.

To the Editor of THE LANCET.

SIR,—As in your issue of Nov. 29th you stated that Prof. Johann Loos says that there are no second attacks of measles, I thought that a series of 16 cases of measles which I attended during 1911 might be of interest as each case was, after an interval averaging 16 or 17 days, followed by a second attack. The following case is typical of the series:—

Winifred C., aged 3, was taken ill on April 21st; she had all the catarrhal signs of the invasion stage of measles, and the eruption first became visible on the face on April 24th; this spread over the body and had the appearance of the rash seen in measles. The temperature reached 104° F., and some broncho-pneumonia developed. The condition of the lungs was improving and the temperature was nearly normal when, on May 6th, it rose to 102°; the eyes and nose were running, and on May 9th the rash came out; this was similar to the first rash, it faded in a few days, and the child soon recovered.

All the cases occurred in young children, only three being above 6 years old. None had had a previous attack of measles. Several of the children were examined for Koplk's spots, but there was no definite evidence of these found. None of the second attacks were fatal, but there were several fatal cases of measles in the same district. Of the 16 cases, eight lived in two adjoining streets, and five more lived in a neighbouring district. In one house two children were taken ill about the same time, but only one had a second attack. In another house there were two children; the elder one was taken ill, and ten days after the younger; as this one was recovering, the elder had a second attack, and ten days later the younger one also had a second attack.

During the time these cases were occurring I attended 106 cases of measles. These were in four separate districts. In the first district, 8 out of 54 had a second attack; in the second, 5 out of 30; in the third, 1 out of 4; in the fourth, 2 out of 18. The interval between the attacks varied from 12 to 20 days. This did not appear to be influenced by the complications, as in two cases the second attack developed while broncho-pneumonia was present. Both the primary and secondary attacks were of ordinary severity, except the primary attack in two cases.

I am, Sir, yours faithfully,
Bristol, Dec. 6th, 1924. ERNEST K. GAWN, M.D.

⁂ In his article Prof. Loos was not considering relapse or what he calls "reiteration" in measles, and it is under this heading rather than second attack that Dr. Gawn's interesting cases fall. Such relapse seems to be very rare.—ED. L.

LUPUS ERYTHEMATOSUS AND ALOPECIA AREATA.

To the Editor of THE LANCET.

SIR,—The following case supports the late Dr. M. G. Hannay's interesting observations in THE LANCET of Nov. 29th (p. 1119) on the association of these conditions.

Twenty-five years ago an undergraduate of the athletic type developed alopecia areata. About a year later, in a boxing competition, he received a very slight and superficial abrasion of the skin over the left nasal bone, and also a small bruise over the fourth and fifth metacarpal bones. These were considered trifles and ignored. Suppuration did not occur in the devitalised tissues, but the lesions remained slightly red, painless, and failed to heal. Some months later the unsatisfactory state of the lesions was attributed to neglect and the fact that boxing pursuits had continued. Later still a medical student made the shrewd remark that the condition suggested lupus erythematosus. It was difficult at that time to get this opinion confirmed, but it ultimately proved to be correct. The alopecia areata was active for perhaps a period of three years, and then apparently spontaneously ceased for many years. There has been slight itching of the scalp recently. The face lesions have slowly progressed.

I am, Sir, yours faithfully,
J. HARGREAVES ROBINSON.
Harley-street, W., Dec. 8th, 1924.

SUCTION IN SURGERY.

To the Editor of THE LANCET.

SIR,—Twenty years ago, while working on the problem discussed by Mr. Norman C. Lake in your to-day's issue, I devised the two following instruments.

A sucker for abdominal fluids, consisting of a metal globe, one inch in diameter, with multiple perforations everywhere except at its extreme base. Into the top of the globe ran two parallel metal tubes. One, 9 in. in length, reached only to the top of the globe, its other end being open to the air. The other tube, length 15 in. extended, inside the globe, to just short of the globe's bottom; the outer end of this tube was curved and connected with the suction apparatus. With the globe immersed, either partially or completely, in a pool of fluid, the fluid gravitates, through the perforations, into the bottom of the globe and surrounds the end of the longer tube through which the fluid is sucked out. The shorter tube, by connecting the interior of the globe with the air, prevents the suction from extending to tissues outside the globe.

A combined Junker and evacuator, for cleft palate and allied operations. This consisted of two parallel metal tubes, with curved ends, one for each nostril, the distance between the tubes being adjustable to suit the size of the nose. The anæsthetic tube carried on its inner end a short length of rubber tubing with a terminal opening, which, when in the nose, lay at the level of the posterior nares, the outer end being attached to the tubing of a Junker bottle. The evacuation tube had on its inner end a piece of rubber tubing whose end, having a lateral opening in addition to the terminal opening, lay in the pool of blood and saliva which collects in the nasopharynx of a cleft-palate case when the patient's head is drawn over the end of the table.

These two suckers are described in the *Medical Annual* for 1902.

During operation suckers are useful for removing fluids from cavities and from hollow organs. Their employment for removal of blood from superficial wounds, in my opinion, has little to recommend it. Suction was provided by an ordinary Higginson enema syringe worked by a nurse. The sucking end of the syringe was fitted into six inches of stout rubber tubing, this large tubing being linked up by a tapered metal tube with the six feet of small tubing leading from the sucker. When required a collecting bottle was interposed between the syringe and the end of the tubing attached to the sucker. The reversed enema syringe is very efficient, is available at any time and anywhere, and does away with the need for suction apparatus worked either by water, electricity, or gas bottles.

In my own theatre for 12 years I have used a suction apparatus worked by water, on the principle of that used by dentists. Recently, in a theatre which had no water-suction apparatus, I was glad to revert to the enema syringe, which, during an operation on a ruptured ovarian cyst, evacuated from the pelvis half a gallon of fluid.

I am, Sir, yours faithfully,

Plymouth, Dec. 6th, 1924. C. HAMILTON WHITEFORD.

A WELCOME DISCLAIMER.

To the Editor of THE LANCET.

SIR,—I am very much alive and am going away for a trip to Florida, Cuba, and California, and will put in my time fishing, golfing, &c. I will appreciate it greatly if you will see that THE LANCET corrects the error, as I do not wish to have my many friends in London think I am no more when I am enjoying the most active time of my life.

With very best wishes, I remain,
Sincerely yours,

New York, Nov. 24th, 1924. S. G. GANT.

*** Our review of Prof. Gant's great treatise on Proctology (THE LANCET, Nov. 8th) suggested that its author was dead. Our error is corrected above on good authority and in conclusive terms, we are glad to say.—ED. L.

CHELSEA HOSPITAL FOR WOMEN.—This hospital and its convalescent home at St. Leonards-on-Sea are able to look back upon an excellent year's work. Great progress has been made at the hospital during the past year in the building of its nurses' home and in the completion of the fund for its erection. When the festival dinner was held in May last under the presidency of the then Lord Mayor, the amount of the appeal was £20,000 for the purpose and for the opening of the 47 additional beds. Of this sum there still remains to collect £6500. This is urgently needed so that the home may be opened in the new year free of debt, and also that additional regular income may be forthcoming in view of the great increase which will shortly be possible in the work of the hospital. Some of the additional beds will be devoted to the treatment of those who can no longer, as formerly, afford to pay the fees of nursing homes. The long "waiting list" which has been for many years past a source of much concern to the medical staff will, it is confidently anticipated, soon be eliminated. Contributions are greatly needed, and will be thankfully received by the hon. treasurer or the secretary at Arthur-street, at the Chelsea Hospital for Women.

Medical News.

UNIVERSITY OF CAMBRIDGE: *Diploma in Psychological Medicine.*—A course of instruction covering the material necessary for the psychiatrical portion of the examinations in Part II. of the Diploma in Psychological Medicine will be held in the psychological laboratory of the University and in the Fulbourn Mental Hospital on Tuesdays and Fridays of the Lent Term, 1925, from Jan. 16th to March 10th inclusive. Those wishing to take this course should communicate not later than Dec. 31st next with the secretary, Committee in Psychological Medicine, Psychological Laboratory, Cambridge, from whom further particulars may be obtained.

UNIVERSITY OF LONDON.—At a recent meeting of the Senate the following were constituted the Boards of Examiners acting with the External Examiners for the First and Second Examinations for Medical Degrees in 1925, the examiners whose names are marked with an asterisk being appointed chairmen of their respective boards:—

Inorganic Chemistry: *Mr. J. A. Gardner (St. George's Hosp. Med. Sch. and Lond. Sch. Med. Women) and Prof. C. S. Gibson (Guy's Hosp. Med. Sch.). General Biology: Dr. Doris L. MacKinnon (King's Coll.) and Dr. E. J. Salisbury (Univ. Coll.). Physics: *Mr. J. H. Brinkworth (St. Thomas's Hosp. Med. Sch.) and Mr. B. L. Worsnop (King's Coll.). Organic Chemistry: *Mr. J. A. Gardner (St. George's Hosp. Med. Sch. and Lond. Sch. Med. Women) and Prof. J. C. Drummond (Univ. Coll.). Anatomy: *Prof. E. Barclay-Smith (King's Coll.) and Prof. F. G. Parsons (St. Thomas's Hosp. Med. Sch.). Physiology: *Prof. H. E. Roaf (London Hosp. Med. Coll.) and Prof. Swale Vincent (Middlesex Hosp. Med. Sch.). Pharmacology: Dr. O. F. F. Leyton (Lond. Hosp. Med. Coll.) and Dr. O. Inchley (King's Coll.), and *Prof. A. J. Clark.

The following were appointed Associate Examiners for the M.B., B.S. Examinations in 1925:—

Medicine: Prof. F. R. Fraser, Prof. F. S. Langmead, Prof. H. MacLean, and Dr. Gordon M. Holmes. Surgery: Mr. H. S. Souttar, Mr. C. H. S. Frankau, Mr. E. D. Telford, and Prof. C. A. Pannett. Obstetric Medicine: Mr. M. H. Phillips and Prof. Louise McIlroy. Pathology: Prof. S. MacDonald and Prof. E. H. Kettle.

Dr. Joseph Bamforth was recognised as a teacher of Bacteriology at St. Thomas's Hospital Medical School.—Dr. F. L. Hopwood, D.Sc. Lond., was appointed as from Oct. 1st, 1924, to the University Chair of Physics, tenable at St. Bartholomew's Hospital Medical College.—The title of Reader in the University was conferred on Dr. R. J. Gladstone in respect of the post held by him at King's College.—It was resolved to institute, in accordance with the regulations on University titles, a University Chair of Pathology tenable at the London School of Medicine for Women.

TORONTO UNIVERSITY AWARD.—The Council of the Faculty of Medicine of the University of Toronto have awarded the Charles Mickle Fellowship of the University to Sir James Mackenzie, M.D., LL.D., F.R.S., Honorary Physician to the King in Scotland. The Fellowship, which is of the value of approximately 1500 dollars, is awarded annually to that member of the medical profession who is considered by the Council to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science.

AN EMPIRE FOOD COUNCIL.—A conference will be held in the new year, by consent of the Royal Colonial Institute, in their council room to inaugurate an Empire Food Council, organised to encourage the consumption in the United Kingdom of the food products of the overseas part of the Empire and of Great Britain herself; to spread general information about food; and to arrange a British Empire bread campaign to popularise bread made from wheat grown in Great Britain and the Dominions and ground in Great Britain and Ireland. The chair will be taken by Prof. H. R. Kenwood, supported by Lord Bledisloe, Sir Arthur Crosfield, Sir Harry Baldwin, Sir Arthur Mayo-Robson, Sir Frederick Mott, Major J. Elsdale Molson, Dr. Nathan Raw, and Dr. C. W. Saleeby. Representatives will attend from the Australian Commonwealth (commercial department), the Canadian Chamber of Commerce, the British Empire League, the British Empire Producers' Organisation, the British Empire Union, the Empire Development Union, the Overseas Farmers Coöperative Federations, the Bread and Food Reform League, the Food Education Society, the People's League of Health. Further information can be obtained from Miss May Yates, hon. secretary, Bread and Food Reform League, 37, Essex-street, London, W.C. 2.

Metropolitan Asylums Board.—Courses of instruction for medical graduates and students will be held under the Board from January to March as follows:—

Hospital Administration (for the Diploma in Public Health).—A three months' course of lectures and demonstrations at the North-Western Hospital, Lawn-road, Hampstead, N.W. 3, by Dr. E. W. Goodall, medical superintendent, on Mondays and Thursdays at 4.30 P.M., and alternate Saturdays at 10.30 A.M., beginning Monday, Jan. 5th.

Diagnosis and Treatment of Fevers.—During January next courses will be held at various hospitals under the Board. Dr. F. M. Turner, medical superintendent of the South-Eastern Hospital, Avonley-road, Old Kent-road, S.E., will give a two months' course at that hospital on Tuesdays and Fridays at 11 A.M., beginning Tuesday, Feb. 3rd. Further particulars may be obtained from the Clerk to the Metropolitan Ayslums Board, Victoria Embankment, E.C. 4.

Fellowship of Medicine and Post-Graduate Medical Association.—The Fellowship of Medicine programme of special courses for the month of January includes various specialties as well as a two weeks' intensive course from Jan. 12th to 24th at the London Temperance Hospital. The programme will cover the whole day and will include all the general and special departments of the hospital in addition to a special lecture at 4.30 P.M., to which members of the medical profession are invited. Bethlem Royal Hospital, the Royal Westminster Ophthalmic Hospital, and the North-Western Fever Hospital will be coöperating with the London Temperance Hospital. An intensive course will also be held in cardiology at the National Hospital for Diseases of the Heart from Jan. 12th to 23rd; a series of lecture-demonstrations on the treatment of common nervous diseases will be given at the West End Hospital for Nervous Diseases in the out-patient department, 73, Welbeck-street, W., from Jan. 5th to 31st; a two weeks' course in ophthalmology at the Royal Eye Hospital from Jan. 5th to 17th, comprising clinical cases, followed by a lecture on the more important diseases of the eye; eight lecture-demonstrations in psychological medicine at Bethlem Royal Hospital, and a four weeks' course in urology at St. Peter's Hospital from Jan. 12th to Feb. 7th. Copies of the syllabus of each of the above-mentioned courses, together with the list of special courses arranged up to June, 1925, may be obtained on application to the secretary to the Fellowship of Medicine, 1, Wimpole-street, W. 1. Arrangements are being made for a series of Fellowship lectures to be delivered at the House of the Royal Society of Medicine.

Post-Graduate Entente Between America and England.—The Inter-State Post-Graduate Assembly of America, directed by the State District Medical Association of that country, is visiting the British Islands during the first three weeks of June, 1925, in order to hold the annual congress of the Association, under the presidency of Dr. W. J. Mayo. The itinerary includes, as well as London, Edinburgh and Dublin, Leeds, Liverpool, Manchester, and Newcastle, Belfast and Glasgow. An advisory committee has been formed to organise the reception of the visitors in London, consisting of Sir Humphry Rolleston, Sir William Hale-White, Sir StClair Thomson, and Mr. H. J. Waring, while the arrangements in the provincial cities will be in the hands of Sir Robert Jones, Sir Berkeley Moynihan, Mr. Grey Turner, Sir William Milligan, Sir Harold Stiles, and Sir William Wheeler. Prof. Tuffier will make the preparations for a visit to Paris later. The arrangements of the professional and social programme of the tour has been placed in the hands of Mr. Philip Franklin, who gave a dinner at Claridge's Hotel last week to enable the American Ambassador to meet some of those interested in the movement. The guests included, as well as the advisory committee and the Presidents of the Royal Colleges, the American Consul-General; Lord Desborough, President of the Pilgrims Society; Lord Dawson; Prof. C. M. Gayley, Director of the American University Union in Europe; Mr. Wilson Cross, President of the American Society in London; Mr. F. E. Powell, President of the American Chamber of Commerce; Sir Squire Sprigge, Editor of THE LANCET; Mr. Donald Armour, representing Canada; Dr. R. A. Bolam, Sir D'Arcy Power, Sir Arbuthnot Lane; Mr. Robert Grant, jun., of the American Red Cross; and Dr. Arthur Ellis, Mr. Girling Ball, Mr. H. W. Carson, and Dr. Eric Pritchard, the honorary secretaries of the programme committee. There were no formal speeches on this occasion, but after a welcome from the American Ambassador, Sir Humphry Rolleston and Sir John Bland-Sutton spoke of the interest that would be felt by the Colleges, and Sir StClair Thomson, President of the Royal Society of Medicine, invited the visitors to use two of the lecture rooms in the Society's house during the necessary days—namely, from June 1st to 6th. Other speakers, advocating the practical need of entente, were Mr. Waring, Mr. Powell, Mr. Armour, and Sir Squire Sprigge.

Royal Institution of Great Britain.—The juvenile Christmas lectures will be delivered at 3 P.M. on Dec. 27th and 30th, 1924, and Jan. 1st, 3rd, 6th, and 8th, 1925. They will be given by Mr. Frank Balfour Browne, lecturer on entomology in the University of Cambridge, under the general title Concerning the Habits of Insects. The subject will be divided among the six lectures as follows: (1) Insect Collecting and What It Leads to; (2) Habits of Bees and Wasps; (3) Habits of Caterpillars; (4) Habits of the Dragon-fly; (5) Habits of the Water-beetle; and (6) Habits of Insects and the Work of Man.

Bethlem Royal Hospital.—The spring course of study for the Diploma in Psychological Medicine of the various universities will commence at the hospital on Jan. 5th, 1925. The course consists of lectures and demonstrations in (*a*) the anatomy, histology, and physiology of the nervous system; (*b*) psychology; (*c*) neurology; (*d*) psychological medicine; and (*e*) mental deficiency. A full syllabus of the course, together with a list of the lectures, may be obtained from the physician-superintendent at the hospital, London, S.E. 1.

Presentation to Dr. H. Campbell Thomson.—Following the recent retirement of Dr. H. Campbell Thomson from the staff of the Middlesex Hospital, his colleagues and old fellow students entertained him to dinner at Oddenino's Restaurant on Dec. 3rd. Eighty-nine sat down to dinner, and Dr. Campbell Thomson was presented with a pair of prismatic field glasses, and a George III. silver tankard, on a base suitably inscribed, as a memento of the occasion and a mark of affection and appreciation.

New Children's Hospital for Kensington.—On Dec. 3rd, in the Kensington Town Hall, the Mayor of Kensington, Alderman Archibald Allen, presided over a meeting in support of the proposed Princess Louise Hospital for Children in North Kensington. The hospital is intended to replace the 11 cots at the Children's Hospital in Church-street, and an appeal is being made for £80,000. Lord Balfour of Burleigh, the hon. treasurer of the building fund, stated at the meeting that Princess Louise had intimated her intention of giving £1000, the Mayor of Kensington had subscribed £500, and an anonymous donor through Mr. Percy Gates, M.P., had promised £500 if nine others gave a similar amount each. Sir Henry Seymour King has promised to be one of the nine.

Presentation to Dr. E. W. Hope.—Dr. Hope, who recently retired from the post of medical officer of health for Liverpool after 41 years' service, was on Nov. 25th entertained at luncheon at the Exchange Station Hotel, Liverpool, by the members of the city council, and presented with an illuminated address and a handsome antique silver tray and tankard. Sir Archibald Salvidge presided, and there was a large and representative gathering, including the Lord Mayor and Lady Mayoress. Since his retirement Dr. Hope has been the recipient of expressions of friendship from many of those with whom he has been associated, including his colleagues and staff, the Medical Institution, the Mersey Docks and Harbour Board, the Liverpool Steamship Owners' Association, and the Midwives' and Welfare Associations.

Christie Hospital and Cancer in Manchester.—At the recent annual meeting of the hospital board it was stated that the number of patients treated during the past 12 months was 482, and was a record. Of the 423 new in-patients 125 were inhabitants of Manchester, and the remaining 280 came from many parts of the North of England as far away as Penrith and Newcastle-on-Tyne; 302 suffered from cancers and tumours, and 121 from pre-cancerous conditions or chronic ulcerations. Of the 448 in-patients, 358 had been discharged, 72 had died, and 18 remained in hospital. During the year the hospital had provided a permanent abode for 76 patients who could not properly be treated at home owing to the grave character of their ailment, having been admitted at a late stage of the disease. The chairman of the medical board said that there was a definite increase in the number of apparent cures, and methods of alleviation had increased so considerably that patients could be made fit for treatment at home where formerly they had to be kept in hospital. Fewer patients died to-day from the primary form of cancer owing to the radium, X ray, and operative treatment now available, and the secondary form, which was internal, not external, was, as a rule, not so foul or painful. Prof. R. B. Wild welcomed the interest shown by the public in cancer research. We knew, he said, a great deal more about cancer than about some of the more common diseases. This year the committee had offered a prize of £300 for the best essay on the ætiology of cancer, based on original observations or experimental work. Their object was to find one or more men suitable for carrying on the work of research.

BURY INFIRMARY.—A new children's ward has been added to the Bury Infirmary at a cost for erection and equipment of £12,000 and with an endowment of £30,000. This ward represents the principal of two schemes in the town's war memorial, the other being a cross in the centre of the town. The total sum subscribed was £46,300, of which sum Lord Derby and Lord Stanley jointly gave £5000 and Lord Doverdale, a native of Bury, £4000.

SOCIETY OF APOTHECARIES OF LONDON.—A Livery dinner of the Society was held on Dec. 9th, the Master, Dr. Algernon Brenchley, presiding, supported by the Junior Warden, Dr. Alfred Hepburn, and the Deputy Senior Warden, Mr. Samuel Osborn. The toast of The Combatant Forces, proposed by Mr. Osborn, was responded to by Surgeon Vice-Admiral J. Chambers and Lieut.-General Sir William Leishman; and that of the Royal Colleges and Universities, proposed by the Master, by Sir Humphry Rolleston and Dr. E. Graham Little, M.P. The toast of The Guests was responded to by the Rt. Hon. Sir Henry Craik and Mr. Walter G. Bell, whose literary and archæological interest in the history of London was well displayed in his words. Among those invited were Sir George Makins, Sir George Buchanan, Sir Arbuthnot Lane, Sir Ronald Ross, Dr. de Havilland Hall, Mr. Malcolm Hepburn, and Sir Squire Sprigge. A good musical programme was interspersed with the speeches.

ST. GEORGE'S HOSPITAL: NEW OUT-PATIENT DEPARTMENT.—The new department at St. George's Hospital, London, which has been constructed and equipped at a cost of some £16,000, was formally opened by Sir Humphry Rolleston, the President of the Royal College of Physicians, on Dec. 5th, when he also unveiled a bronze bust of John Hunter which has been mounted over the gateway in Knightsbridge. The bust formerly adorned the board room of the hospital. In opening the new department Sir Humphry Rolleston said that besides providing relief to the sick poor the out-patient department was important as a centre for consultation with general and panel practitioners who could thus obtain an opinion by letter. Some 60 per cent. of the patients were sent to the hospital with that object. The out-patient, also, was in the position to benefit from the highest form of medicine, the ideal of the prevention of disease. Lord Maidstone, the hon. treasurer, referring to the financial struggle which the hospital was making to maintain itself, said that the method of meeting the annual deficit of £20,000 by encroaching on capital could not continue indefinitely. In the new department provision has been made for the different sections—medical, surgical, gynæcological, ophthalmic, and throat, ear, and nose. The buildings are of the most modern type. In the ophthalmic section five special dark-rooms for eye-testing have been made under the road.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Opening of the Session.—The King's Speech.

PARLIAMENT was opened in State by the King on Dec. 9th. In the course of the Speech from the Throne it was stated that a Bill was under consideration for safeguarding employment in efficient industries where, after inquiry, the need for such exceptional action was established. His Majesty's Ministers were deeply impressed by the continued shortage of housing accommodation. Private builders would be encouraged and the Government would devote their attention to overcoming the rising cost of houses and the shortage in the available supplies of labour. New methods of construction would also be encouraged. Something was already being done under existing legislation to clear the worst areas and to remedy sanitary and structural defects in those which remain. As new building increased it would be possible largely to develop this process and the Government would take every opportunity of pressing it forward with vigour. The Government were engaged upon inquiries into the possibility of combining with existing systems of insurance provisions for improved old age pensions and pensions for widowed mothers. Steps would be taken to carry out the principal recommendations of the Committee on the use of preservatives and colouring matter in food, and for the ascertainment of costs and profits in the distribution of milk.

HOUSE OF COMMONS.

TUESDAY, DEC. 9TH.

The Debate on the Address.

IN the course of the debate on the Address in reply to the King's Speech, Lieut.-Colonel FREMANTLE said that the death-rate from tuberculosis had been reduced by one-half in the last 30 or 40 years, and if the other half could be removed, the nation would save £90,000,000 of the national income and about £5,000,000 to the Exchequer annually. A Milk Bill to deal with tuberculous milk was passed at the beginning of the late war, but was never enforced. The time had come when it should be re-enacted.

Referring to the housing question, Colonel Fremantle said the essential thing was to see to the distribution of the houses built. House-building was at present being carried on to a certain extent under town-planning schemes. But town-planning schemes had lagged behind since 1909, when that great ideal was first established. An Act was brought in in 1919 to make the adoption of town-planning schemes compulsory, but the schemes so far referred only to areas that were to be built up. He hoped to see the pace increased and that they would insist that all areas should get town-planning schemes prepared very soon. In addition, they needed new legislation to enable them to complete town-planning by applying it to already built-up areas. All who had had experience in the large municipalities recognised how difficult it was to deal with the large areas where slums were being pulled down, or were to be pulled down with the intention of building up again. There were no powers for town planning in such cases. The need of a Bill to enable town planning to be adopted for areas already built up was urgent. The replacement of old houses should be done on proper lines. The authorities should have power to take over sufficiently large areas and to reconstruct them, not simply to improve streets where they were, but to make a change on a much larger scale. This procedure would have to be brought into relation with the traffic problem, which was only at the beginning of its difficulties. It was owing to the traffic problem that the attention of the public had been directed to the fact that it was necessary to get people out of London. They could not do that with a population congested as it was now. It could be done with improved prosperity and an enormous increase of motor-cars, as in other towns abroad. The two questions must be dealt with together. The problem could be solved only on the principle of the "satellite" city—the principle of the garden city which had already been tried at Letchworth and Welwyn. He hoped that the larger scheme he had suggested might find a part in the Government programme.

There were certain other health services which he hoped that the Government would be able to help. They had been told that a Factories Bill, a consolidating and amending measure, was to be brought in. The Bill introduced in the last Parliament was a very mixed Bill and from the health point of view it was sadly lacking, especially in organisation. It was retrogressive and reactionary in one sense. It took a large measure of local administration out of the hands of the local sanitary authorities and brought it back to Whitehall. It made no arrangement for a proper medical and health department in Whitehall, and it showed no understanding of the necessity of linking up health in the factories with the general health system of the country under the Ministry of Health. Some such system must be devised and carried through in the near future. There were several Ministries of Health now in existence. The Factory Department at the Home Office was almost a Ministry of Health in itself. Health problems under the Board of Education almost demanded a ministry in themselves. The Ministry of Health was the third. There were also large health departments in most of the other Government departments. Yet there was no scheme for linking these things together. It was puerile and absurd to go on in this way. They must have a proper staff arrangement to get them linked up together, with a common policy for working together instead of working as now, in separate compartments.

Other things ripe for solution were being inquired into by Royal Commission or Committee. In the case of the Royal Commission on the Insurance Acts he hoped that the medical profession would make a very great contribution to the inquiry in order to get a national solution of the problem of panel treatment. Then there was the Royal Commission on London Government. He hoped that they would get the problems of London government finally settled, especially with a view to a proper settlement of the health services. Unfortunately, the position of the medical service in India was such that young medical men were being frightened from giving their services to India as so many magnificent men did in the past. What was the attitude of the Government towards the Lee Commission with regard to the medical services in India? If it was proposed to abolish the medical service and to provincialise it the result would be that they would not get men for this essential and humane work in India. The Royal Army Medical Corps was in a most perilous position. Recruits could not be obtained. The same remark applied to the Colonial Medical Services. These questions should be looked at by the Government, not in a piecemeal way, but as part of a definite health policy which would have regard to all the different factors.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Dec. 16th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.

Wednesday, Dec. 17th.

HISTORY OF MEDICINE: at 5 P.M.
Mr. F. C. Pybus: (1) The Newcastle Barber Surgeons Company; (2) A New Harvey Manuscript in His Own Copy of the "Degeneratione."
Mr. Walter G. Spencer: Exhibit from the Library of 18th Century Anatomical Mezzotints by Jacques Gautier d'Agoty.

Thursday, Dec. 18th.

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases and Specimens:
Dr. Aldo Castellani: Exhibition of Tropical Specimens.
Dr. A. C. Roxburgh: Schamberg's Disease.
Other cases will be shown.

Friday, Dec. 19th.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
A series of short papers and demonstrations will be given by Dr. Friel, Dr. Teall, Dr. Meyrick-Jones, and others.

HUNTERIAN SOCIETY.
Monday, Dec. 15th.—7.30 P.M., Dinner at Simpson's Restaurant, 2 and 3, Bird-in-Hand Court, Cheapside, Discussion on Headache, by Dr. C. O. Hawthorne, Mr. W. Trotter, Dr. Bernard Hart, and Dr. H. Fielding Briggs.

TUBERCULOSIS SOCIETY.
Friday, Dec. 19th.—8 P.M. (at the house of the Society of Medical Officers of Health, 1, Upper Montague-street, Russell-square), Dr. F. G. Chandler: Tuberculous Peritonitis.

CHELSEA CLINICAL SOCIETY.
Tuesday, Dec. 16th.—8.30 P.M. (at the Club Room, St. George's Hospital, entrance in Knightsbridge). A Discussion on Some Diseases Common to Adolescence will be opened by Dr. Theodore Thompson and Mr. Ivor Back.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
Monday, Dec. 15th.—4 P.M., Mr. F. W. Twort (Superintendent of the Brown Institution): Lectures on Modern Bacteriological Technique.
Tuesday.—4 P.M.
Wednesday.—4 P.M.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
Monday, Dec. 15th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.
Tuesday.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
Wednesday.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Owen: Medical Out-patients. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
Thursday.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
Friday.—10.30 A.M., Dr. Pritchard: Medical Wards. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.
Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

LONDON HOSPITAL MEDICAL COLLEGE, Turner-street Mile End, E.
Wednesday, Dec. 17th.—4.15 P.M., Sir Arthur Keith: The Clinical Importance of the Bulbus Cordis (Schorstein Memorial Lecture).

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
Tuesday, Dec. 16th.—5 P.M., Dr. Graham Little, M.P.: The Keratoses. General View.

ROYAL DENTAL HOSPITAL OF LONDON POST-GRADUATE LECTURES.
Wednesday, Dec. 17th.—5 P.M., Mr. F. St. J. Steadman: The Technique of Some Surgical Operations about the Mouth.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
Tuesday, Dec. 16th.—4.15 P.M., Dr. A. E. Barclay: X Ray Treatment of Hyper-thyroidism.
Friday.—Dr. D. E. Core: Early Mental Disease, its Differentiation and Prognosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)
Tuesday, Dec. 16th.—(At the Children's Hospital.) Dr. John Stokes: Rheumatism in Childhood.
Friday.—(At the Royal Infirmary.) Injuries of the Knee-joint, &c.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.
Tuesday, Dec. 16th.—4 P.M., Dr. Maclennan: Pathology of the Kidney.

Appointments.

Carruthers, A. A., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the 'Shilton District of Warwick.

Daley, W. A., M.D., B.S. Lond., M.B., Ch.B. Liverp., D.P.H., Medical Officer of Health for the City of Hull.

Higgins, J. B., M.B., Ch.B. Manch., Honorary Radiologist at Buxton Cottage Hospital.

Vacancies.

For further information refer to the advertisement columns.

Adelaide University.—Marks Lectureship in Applied Physiology and Sheridan Fellowship. £750.
All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Res. Sen. H.S. at rate of £200. Also Jun. H.S. at rate of £100.
Birmingham City Fever Hospital, Lodge-road.—Asst. M.O. £400.
Blackburn and East Lancashire Royal Infirmary.—3rd H.S. £150.
Bradford City.—Sen. Dent. O. £650. Also Asst. Sch. Dentist. £450 and bonus.
Brighton, Poor-law Institution and Infirmary, &c.—M.O. £800.
Bristol Royal Infirmary.—Hon. Reg. to Ear, Nose, and Throat Dept.
Cambridge, Addenbrooke's Hospital.—Cas. O. and Res. Anæsthetist at rate of £130.
Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—S.
Derbyshire Royal Infirmary.—Hon. Asst. S.
Dumfries and Galloway Royal Infirmary.—Jun. R.M.O. £125.
East Sussex County Mental Hospital, Hellingly, Sussex.—Pathologist. £400.
Edmonton Education Committee.—Asst. Sch. M.O. £600.
Exminster, Devon Mental Hospital.—Jun. A.M.O. £300.
Johannesburg, South African Inst. for Med. Research.—Plague Bacteriologist. £1500.
Malayan Medical Service.—Medical and Health Officers. See advt. for salaries.
Manchester Royal Infirmary.—2nd Surg. Reg. £150.
Merthyr General Hospital, Merthyr Tydfil.—Res. H.S. at rate of £100.
Preston Royal Infirmary.—Jun. H.S. £175.
Queen Mary's Hospital, Stratford, E.—Hon. Asst. P. Also Clin. Asst. to Throat, Nose, and Ear Dept.
Royal Army Medical Corps.—Commissions.
Royal Masonic Institution for Girls, Clapham Junction.—M.O. £350.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £150.
St. Bartholomew's Hospital.—Assts. to the Surg. and Med. Professional Units.
St. Mary's Hospital, W.—Med. Reg. £200. Med. Supt. £400.
St. Pancras Dispensary, 39, Oakley-square, N.W.—Hon. P. and Hon. Ophth. S.
Southampton County Borough.—2nd School Dentist. £450.
Southampton, Royal South Hants and Southampton Hospital.—Sen. H.S. £200.
South Shields, Ingham Infirmary.—Sen. H.S. £200.
Stroud General Hospital.—H.S. £120 to £150.
Weir Hospital, Grove-road, Balham, S.W.—Hon. Visiting Phys.
West Bromwich and District Hospital.—Res. Asst. H.S. £180.
West Ham County Borough.—Tuberculosis O. £900.
West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S. and Res. Cas. O. Each at rate of £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Portishead, Somerset, and Ellesmere Port, Cheshire.

Births, Marriages, and Deaths.

BIRTHS.

Woodroffe.—On Dec. 5th, at "Oakvale," Sheffield, the wife of Dr. G. C. L. Woodroffe, of a son.

MARRIAGES.

McCarthy—Bone.—On Dec. 5th, at St. Hilary's Church, Llanrhos, Llandudno, Herbert John McCarthy, M.R.C.S., L.R.C.P., to Cicely Bessie, youngest daughter of Mr. and Mrs. Ernest E. Bone, Rocknest, Llandudno.

DEATHS.

Compston.—On Dec. 2nd, at Ashley-gardens, S.W., after a long and painful illness (contracted on war service in Mesopotamia), Captain George Dean Compston, B.A. Camb., M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE PRESENT POSITION OF INSULIN THERAPY.*

BY GEORGE GRAHAM, M.D., F.R.C.P.LOND.,
ASSISTANT PHYSICIAN, ST. BARTHOLOMEW'S HOSPITAL;
PHYSICIAN, ROYAL NORTHERN HOSPITAL.

IN opening a discussion on the present position of the treatment of diabetes with insulin it is unnecessary to speak in detail about some aspects which had to be considered a year ago, and I would rather discuss the principles which are controlling its use. Everyone will agree that while insulin is invaluable in the treatment of diabetes it cannot be called a cure. The points which I would like to consider are these :—(1) The aims of treatment with insulin. (2) The type of case which should be treated with insulin. (3) The best type of diet. (4) The value of insulin in the treatment of coma. (5) The value of insulin in the treatment of other infections and minor complications.

The Aims of Treatment.

One of the chief difficulties in deciding these points is the improvement which takes place in the clinical condition of the patients on all varieties of treatment with insulin. The patients nearly always feel so much better that it is difficult to say which is the correct line of treatment, and another five years may have to pass before some of these questions can be answered with certainty. Before the introduction of insulin it was accepted that the patient's diet should be so adjusted that the urine did not contain any sugar, and that the fasting value of the blood-sugar was within the normal limits of 0·08 to 0·12 or 0·13 per cent. In order to achieve this it was necessary in severe cases to give a diet of very low caloric value, and the patients were all much under the normal weight. When insulin was available the natural thought of most workers was that the patient need no longer be undernourished. The carbohydrate was increased so that at some time of the day the blood-sugar was raised above the normal level and sugar was excreted in the urine. Of the eight groups of workers in Canada and the United States who took part in the early study of insulin only two, the Toronto school (Banting, Campbell, and Fletcher) and Allen's school, aimed at keeping the fasting value of the blood-sugar within normal limits; one, Joslin, tried to keep the urine sugar-free; but the other five all thought that it was unnecessary to keep the urine sugar-free at all hours of the day. In this country the early workers, Poulton, Spriggs, and myself, urged that the ideal of treatment was to keep the urine sugar-free and the level of the blood-sugar within the normal limits 0·08 and 0·13 per cent. This attitude was taken from the consideration of the hypothesis that diabetes is due to a degeneration or hydrops of the beta cells of the islands of Langerhans, and that it is essential that the surviving beta cells should not be overworked at any hour of the day or night. The evidence of overwork would be either the presence of sugar in the urine or a blood-sugar above the fasting value of 0·13 per cent. I think that it is now generally admitted that this practice is correct since it is physiological, although it is not always easy to carry out. So far I have encountered only one patient in whom it proved impossible to maintain the fasting blood-sugar within normal limits some 12 hours after the last dose of insulin.

Another ideal in treatment is that the urine should not contain any acetone bodies. In order to attain this there must be a correct balance between the ketogenic and antiketogenic substances in the diet. This is an ideal which I have not aimed at. I have been content provided that the nitroprusside test for aceto-acetic acid in the urine has not been intense. The usual amount of aceto-acetic acid which patients who are doing well excrete is about 1 g. calculated as acetone. There is one practical advantage in allowing a little ketosis, since if the urine contains no aceto-acetic acid the patient has certainly been adding some carbohydrate to the diet. Although I am not convinced that this small amount of ketosis does any harm, I will admit that it is wrong on physiological grounds, and that it would be better to increase the carbohydrate ration by 5 or 10 g. in order to prevent this ketosis.

The ideal before the discovery of insulin was that the patient should be definitely under weight. I still think that this is the right aim, but that it is sufficient if the patient is about 5 per cent. below the normal weight instead of the 15 to 20 per cent. which was common before. Further, the weight curve should be the guide to the total caloric value of the diet and should determine whether it should be increased or decreased. In children there should be a slow increase. This is necessary as the children have to grow, but they should never be allowed to become fat, and should always be underweight.

Indications for Insulin Therapy.

When insulin was first introduced it was said that if patients could take a reasonable amount of food, say 50 g. of carbohydrate and an adequate caloric value, without passing sugar, it was unnecessary to give them insulin. This view is still held by some, but I have never accepted it. The improvement which occurs in the clinical condition after a small dose of insulin, 5, 10, or 15 units, is very striking. The patient gains weight and feels capable of doing work, even if no change is made in the diet. This is also Joslin's view, and it would seem as if insulin helped with some other process besides the sugar metabolism, although there is no other proof of this at present.

Insulin has been used in the treatment of the young adult who has had an acute attack of the disease and has come under observation a short while after the onset of symptoms. The sad experience of these cases before the introduction of insulin was that this type of patient responded well to dietetic treatment, but after one to two years began to lose tolerance in spite of all restrictions. The average duration of life of this type of patient for the age-period 20 to 40 was only 5·3 years (Joslin). It therefore seemed justifiable to treat these patients with insulin early in the disease in order to try to prevent the fall in sugar tolerance and perhaps cause a definite rise in sugar tolerance. If small amounts of carbohydrate are given together with sufficient insulin to deal with this sugar the work of the beta cells will be reduced to a minimum. I have been watching six patients and testing the sugar tolerance at intervals by means of a dose of sugar. The actual amount of carbohydrate varies, as four patients are taking 16 to 20 g., one 30 g., and one 60 g. The dose of insulin also varies from 8 to 15 units. It is usually given in one dose, but two patients take it in two doses.

The blood-sugar curves after a dose of 50 g. show that the change in tolerance which has taken place has been very slight, but what change there is, is in favour of an improvement. It is too early to say much about these patients as it will be another four years before they reach the average of their class. Still it may prove a hopeful line of research.

The Best Type of Diet.

The next important question is the nature of the diet which should be used. Everyone acknowledges that the composition of the diet is just as important as before the introduction of insulin, and in fact more attention is paid to it. There is little dispute over the amount of protein, and the usual amount varies from 2/3 g. to 1 g. per kilo of body-weight. But the amount of carbohydrate varies from 16 or 20 g. to 50, 80, 100, or even 200 g. for the same type of case. The dose of insulin varies enormously under these conditions. For more than three years I have felt that a patient who had a definite attack of true diabetes should never take more than a minimal amount of carbohydrate in order to lighten as much as possible the work of the beta cells of the islands of Langerhans. Such a patient has probably lost at least half and perhaps three-quarters of the beta cells (judging by Allen's dog experiments), and has lost the greater part of his reserve power for dealing with carbohydrates. Till now I have usually restricted the carbohydrate to 16 or 20 g. of sugar in the form of vegetables or fruit, but I think that the better figure may be 25 to 30 g. The objection to giving amounts like 50 or 80 g. of carbohydrate are these: (1) The dose of insulin must be larger and the time chosen for the injection must bear a definite relation to the carbohydrate meal. Opinions differ as to the best time to give the injection, some favouring 30 minutes and others 60 minutes. Having to take the insulin a definite time before the meal makes the use of insulin still more of a nuisance. If the amount of carbohydrate is restricted to a minimum there is no need to be so careful about the time of the injection. (2) The relation of the insulin is not quite constant, but varies a little at times. Sometimes the patient may pass a little sugar and at other times he may be in danger of hypoglycæmia on a dose of insulin which is usually quite adequate. (3) Whether it is more of a temptation to the patient to add carbohydrate to the diet if he is taking some bread than when he takes none at all is arguable. I have the feeling that it is better for the patient to forget the taste of bread altogether than to be exposed to the temptation when he takes a fraction. It may prove easier to take none at all of a pleasing food or drink than to take an unsatisfactory amount of it. Another danger of the high carbohydrate feeding arises from the large amount of insulin which is necessary. Should the insulin be stopped for any cause there is an immediate danger of coma in severe cases unless the food is at once reduced. Opinion is also divided on what should be the caloric value of the diet. This varies from 22 to 30 calories per kilo. This for a man of 10 st. 3 lb., or 65 kilos, would be 1400 to 2000 calories. I favour the low values as I have found that with them patients maintain their weight quite satisfactorily. One disadvantage of the high caloric diet is the necessity for an extra amount of fat which must be given to make up the caloric value, and this demands an extra amount of carbohydrate to prevent ketosis.

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* A paper, slightly abridged, opening a discussion on the Present Position of the Treatment of Diabetes by Insulin, read at the Medical Society of London on Dec. 8th.

Effects of Insulin on Coma.

I have no space to say much about coma, though it is in this condition that the value of insulin is most striking. The dose must often be large, 100 units or more in the day, and it is wise to give at least 50 g. of sugar with it. It is advisable to make one or more estimations of the blood-sugar and to examine the urine every two or three hours, so as to avoid the danger of an overdose. The observation of patients in coma has shown that often some acute infection has occurred. Of nine cases at St. Bartholomew's Hospital in one year there was conclusive evidence in seven of such a complication—e.g., otitis media and gangrene of the lung. It follows that whenever a diabetic patient is found in coma a complete examination must be made, and repeated if necessary to exclude this possibility.

Insulin and Concurrent Disease.

The whole question of the effect of other diseases on the diabetic condition is of far-reaching importance. It is a common experience to find that the sugar tolerance is impaired by trivial ailments like colds in the head or an attack of diarrhœa, especially in children. Under these circumstances all these affections should be treated seriously, and the patient should be kept under close observation. The dose of insulin should be increased, and if it be possible, estimations of the blood-sugar should be made so as to ensure that the dose of insulin is adequate. If insulin is used to control the evil effects of the concurrent disease, and thus prevent the overwork of the beta cells which occurs when the blood-sugar is raised for long periods, it should prevent the fall of sugar tolerance.

In conclusion, insulin has enabled the patient to live longer and to enjoy this longer life. It will almost invariably resuscitate the comatose patient. The outstanding problem is the study of the means by which it may be used to prevent the progress of the disease.

A DISCLAIMER.

Dr. V. S. Hodson has brought to our notice that in a recently published book personal reference has been made to him, and his professional address has been added in a footnote. At the suggestion of the Registrar of the General Medical Council, Dr. Hodson desires to state in our columns that he had no knowledge that such information would be given, nor had he any idea that reference would be made to him in any shape or form.

MALARIA AND MOSQUITOES IN AUSTRALIA.

AT the close of the nineteenth century, when mosquitoes were first proved to be of great economic importance, very little was known concerning the habits of even the commonest species. At first very little attention was given to the aquatic stages of the insect, and the adult insects only were named with the inevitable redundancy of nomenclature, for since 1910 many species previously named have been found invalid. The second decade of this century has been a period of revision, a list of useless synonyms has been unravelled, numerous genera have been rearranged and included in one comprehensive genus, so that, at the present time, most of the systematic study of mosquitoes is concerned with synonyms. These circumstances have given rise to the preparation by Mr. L. E. Cooling of a handy list[1] of the principal *Culicidæ* of the Australian region.

He has also published an account of the larval stages and biology of the commoner species of Australian mosquitoes with the biology of *Aëdes perniciosus*, Edwards,[2] which, in conjunction with the work mentioned above, completes the record of information on Australian mosquitoes up to date. A more careful account of the morphology, breeding places, and habits of these insects could hardly be conceived. Further, Mr. Cooling has contributed a valuable appendix on the anopheline mosquitoes of North Australia and its tropical dependencies to a publication in the same series.

A third of Australia lies within the tropical zone, with the addition of Papua and the Mandated Territory of New Guinea. Before the advent of the white man tropical Australia was probably malaria-free, but it has since become infected. The endemicity of the disease, save in a few scattered areas, has not been of grave extent, but it is otherwise in Papua and New Guinea. In the space of 141 pages Dr. C. W. Cilento[3] has presented a concise and readable account of the ætiology of malaria, its clinical manifestations, diagnosis, and preventive measures written from the viewpoint of an Australian. All these pamphlets reflect credit on the institute, and are an index of the useful work being performed there.

THE ANTISEPTIC VALUE OF TOOTH PASTES.

THE literature of tooth pastes is as abundant as it is enthusiastic, but it is not always so accurate as it should be. It is claimed for many well-known tooth pastes, in no uncertain terms, that they possess powerful germicidal properties. These claims have been put to the test by two chemists, Mr. A. E. Parkes and Mr. A. E. Maddy (*Pharmaceutical Journal*, Nov. 8th, p. 563), who examined 12 of the best known brands of English and American make. The pastes were investigated for their antiseptic properties and the results were to show that in practically all cases the claims made by the makers are grossly exaggerated. Four of the samples had no antiseptic properties ; even when the common germs of the mouth were left in contact with a mixture containing 25 per cent. of the tooth pastes for half an hour the organisms were not destroyed. It took from 15 minutes to half an hour for a 10 per cent. solution of the other eight samples to destroy the test organisms. As tooth paste usually remains in contact with the teeth for a few seconds only, it seems clear that the paste even in an undiluted state can have little, if any, effect upon the germs of the mouth. Manufacturers of disinfectants almost invariably sell their goods with a guarantee of germicidal strength compared with carbolic acid. The investigators suggest that manufacturers who recommend their tooth pastes for purposes other than cleaning the teeth should produce evidence of the value of their goods as disinfectants. The spread of disease might be encouraged by literature making claims for tooth pastes which give a feeling of false security to those who use them.

CZECHO-SLOVAKIAN ORNAMENT.[4]

THE employment of men injured in the war as broderers has become fairly common, and we have received a small portfolio, containing 45 original plates, comprising several hundreds of patterns from the entire territory of Czecho-Slovakia. They are in colours and in black and white, and many of them are very beautiful. The aim of the publication is to assert the claims of the Czecho-Slovakian races to these designs, and in a way, no doubt, these claims are just. Many of the motives are to be found in Persian, Turcoman, Egyptian, Cretan, and other Mediterranean embroideries and ceramics, but as employed in Bohemia and the adjoining provinces, where they have been modified and transmuted through many centuries, they emerge as characteristics of the countries and peoples now forming Czecho-Slovakia. For this reason it is to be regretted that the method of production of these plates should be so distinctly Viennese. Their coarseness of presentation is a real drawback, and we should have been able to recommend them as practically useful more easily had photogravure or some similar process been employed, whereby the details of actual use and treatment could have been studied. The charm of a design may depend entirely on its treatment. The Mediterranean countries possess many motives in common, and it is only the details of treatment which betray the nationality of the worker. Among these plates No. 27 shows a design so Persian in origin that far more detail of treatment is necessary before its claim to be a European pattern at all could be substantiated. How Spanish, too, is plate No. 44 ; but this probably can be explained by the tremendous Spanish influence exercised for so long in the Netherlands.

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[1] A Synonymic List of the More Important Species of *Culicidæ* of the Australian Region. By L. E. Cooling, Assistant Entomologist, Australian Institute of Tropical Medicine, Commonwealth of Australia. Department of Health Service Publication (Tropical Division), No. 2. Published under the authority of the Minister for Health.

[2] Service Publication (Tropical Division), No. 8.

[3] Malaria. With Special Reference to Australia and its Dependencies. By C. W. Cilento, M.D., B.S., D.T.M. and H., Director of the Australian Institute of Tropical Medicine. Service Publication (Tropical Division), No. 3.

[4] National Ornament in Czecho-Slovak Schools. By Edward Weichet. Prague: B. Kočí. $3.

Schorstein Lecture

ON THE

FATE OF THE BULBUS CORDIS IN THE HUMAN HEART.

Given at the London Hospital Medical College on Dec. 17th, 1924,

BY SIR ARTHUR KEITH, F.R.S.,
CONSERVATOR OF THE HUNTERIAN MUSEUM.

ON an autumn afternoon, now 20 years distant, I was studying in the Museum of this College the series of specimens which illustrate the various kinds of malformation to which the human heart is liable when I was joined by Dr. Schorstein—that beloved and still youthful physician whose memory we recall to-day. I remember discussing with him the cause of congenital malformations of the heart, and I have chosen the problems of the *bulbus cordis* as the subject of this lecture partly because of Dr. Schorstein's interest in congenital disorders of the heart and partly for another reason. The evidence I had collected—for I searched the medical museums of London and brought together notes on 185 specimens—was sufficient to show me even then that in the vast majority of cases of congenital heart, the defect is due to an imperfect incorporation of the bulbus element. This contention, I think, is now admitted as far as abnormal hearts are concerned, but I do not think that either clinicians or physiologists have yet fully perceived the bearings which this theory has on the constitution and action of the normal heart. It is for this reason that I propose to discuss the fate of the *bulbus cordis* in the human heart. My aim will be to demonstrate the parts of the ventricles formed out of this element, and to show reason why separate consideration must be given to these parts in all our attempts to unravel the exact mechanism of the ventricular pump.

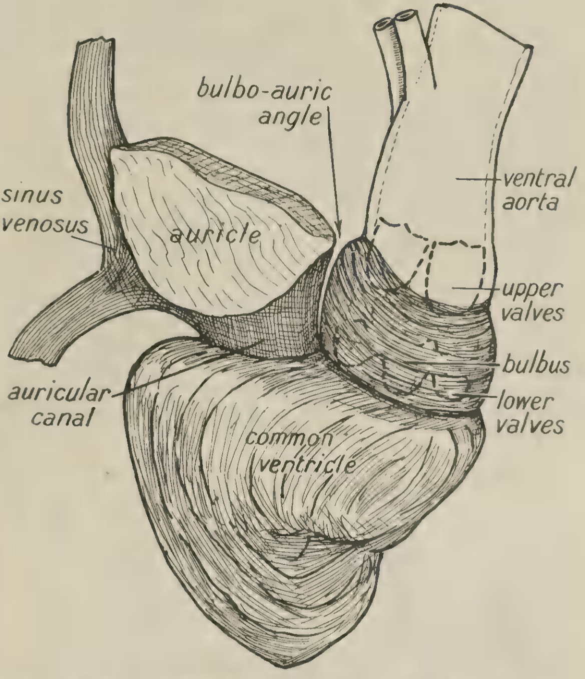
A CURIOUS SPECIMEN OF A MALFORMED HEART.

There was one specimen catalogued amongst the malformed human hearts in the London Hospital Museum which both puzzled and astonished me. In Fig. 1 I reproduce a drawing of this specimen made some 20 years ago. The history in the catalogue ascribed this heart to a child which had lived some months. It was easy to recognise in it all the parts of the selachian or shark's heart—namely, the sinus venosus, the common auricle, the auricular canal, the common ventricle, and the *bulbus cordis* with its lower and upper valves. The embryological investigations of Francis Balfour had given us every reason to believe that the heart of the developing dog-fish represents an ancestral stage in the evolution of the mammalian heart. I was therefore not at all surprised to find a human heart which, in the arrangement of its parts, mimicked so closely that to be seen in the heart of a shark. Fortunately for me, I did not find out until three years later that a mistake must have been made as regards the history of this specimen. For I ultimately proved it to be the heart, not of a child, but of a shark. Some former curator must have mounted it for comparison with malformed human hearts, and during remounting of specimens it had been placed in the wrong jar—one to which there was attached the history of a human heart.

I have said that it was fortunate that I did not perceive my mistake at first, for it was a comparison of this specimen with others in the series of malformed hearts which led me to see that in the course of evolution the *bulbus cordis* must have become incorporated in the ventricles of the human heart. In the series there were specimens showing such a condition as is represented in Fig. 2, where a chamber below the orifice of the pulmonary artery is demarcated from the rest of the right ventricle. Then there were specimens, such as is shown in Fig. 3, where a shallow chamber at the opening of the aorta is separated from the rest of the left ventricle by a constricting ring. I found that the condition in the one kind of specimen was described as pulmonary stenosis, in the other as subaortic stenosis.

Now it seemed clear to me that there was only one way of accounting for these abnormal chambers at the commencement of the aortic stems: they could only be explained by supposing that the *bulbus cordis* did become incorporated in the ventricles and that in these abnormal instances its amalgamation had been arrested. They occupied the exact sites at which the bulbus should appear. A consideration of these specimens also made it clear that the bulbus, like the ventricle, had undergone a division into right and left parts, but that while the part thrown into the left ventricle normally disappeared it was otherwise with the right division; it formed a very large and, from a functional point of view, a very important part of the right ventricle—a part which we shall have to examine presently.

FIG. 1.



To show the various parts of the primitive vertebrate heart.

INCORPORATION OF THE BULBUS ELEMENT IN THE VENTRICLES.

Having satisfied myself on these points I then turned to see how far embryological evidence favoured my theory. I found that Dr. A. Greil, of Vienna, had published in the previous year[1] a splendid research on the development of the heart of reptiles in which he demonstrated that the *bulbus cordis*, while a separate chamber at an early stage, becomes at a later stage overwhelmed by the musculature of the ventricles, and is thus not obliterated but incorporated as an intrinsic part of the ventricular system. It was manifest from what I had observed in these abnormal hearts, that the same thing occurred in mammalian hearts.

Early in February, 1905, there was a meeting of the Anatomical Society at the London Hospital, at which I showed the abnormal hearts just mentioned and made a communication[2] which was published in the

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[1] Morph. Jahrb., 1903, Bd. xxxi., p. 123.

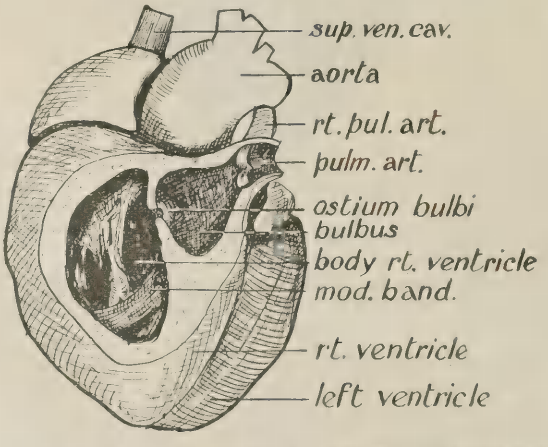
[2] Proc. of the Anat. Soc. of Great Britain and Ireland, February, 1905; included in the Jour. of Anat., 1905, xix., 14.

Proceedings of the Society. As this paper has escaped the notice of clinicians, I have reproduced the simple diagrams with which my early paper was illustrated. In Fig. 4, the right ventricle of a normal human heart has been thrown open and from the septal wall of the infundibulum are seen to arise two great muscular bands, the left infundibular (A) and the right (B). The raphe at which the origins of these two bands meet will be seen to correspond with the origin of the aorta from the left ventricle. The position of the interventricular orifice is indicated by a black dot, just above E. On the sides of the ventricle two points are marked *x*, *x*; these points I originally regarded as indicating the limits of the fully expanded infundibular or bulbus cavity.

In Fig. 7 a more marked arrest in the expansion of the infundibular cavity is depicted; it will be seen that the interventricular foramen remains open, this opening always lying below the level of the bulbus element. In Fig. 8 the arrest of expansion of the bulbus element is almost complete; it is represented merely by a narrow channel lined with thickened endocardial tissue. The interventricular foramen in such specimens is widely open. Then in Fig. 9 is shown a rarer condition, one in which the infundibular element forms a separate cavity and opens from a ventricle in which the septum is absent or imperfectly formed. In this series we see all stages of arrest in the expansion and incorporation of the bulbar element in the ventricles. In subsequent papers I extended the scope of my evidence and sought for a rational explanation of transposition of the great arterial stems.[3]

Since these original papers were published investigations carried out by the late Prof. Franklin Mall,[4] by Prof. J. E. S. Frazer,[5] by Prof. David Waterston,[6] and many others have revealed the exact manner in which the bulbus becomes incorporated in the ventricles during the development of the human heart. In the meanwhile, too, my own knowledge has been extended in three directions. I have come to see that the developing endocardial tissue of the primitive auricular canal and of the bulbus—tissue out of which valvular structures are fashioned—is endowed with most remarkable formative qualities. It behaves, in the development of the heart, exactly as does the granulation tissue of a healing wound.[7]

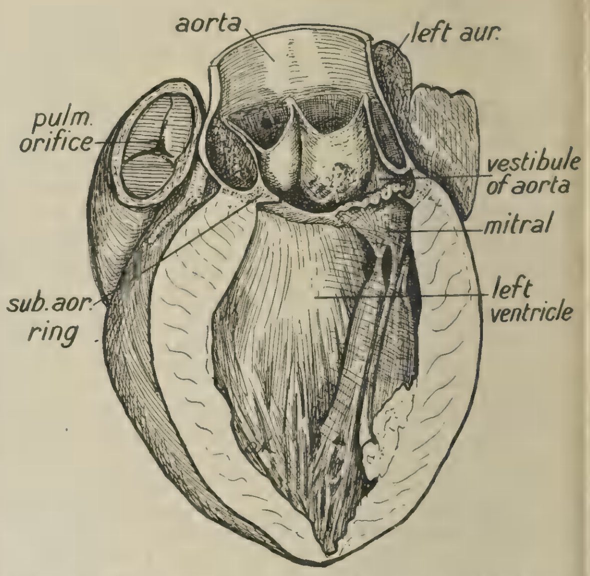
Fig. 2.



Heart of a child, aged 8 months, in which the right ventricle is laid open to show the imperfect incorporation of the infundibular or bulbus element.

In the second place, I have come to see that the muscle cells of the developing heart have a power of invasion, of spreading into and occupying endocardial tissue-masses and of grouping themselves into elaborate formations beyond anything one had formerly conceived as possible. One has for long been familiar with the origin of the complex musculature of the face; it arises in the neck and, from a localised origin, creeps out to occupy the subcutaneous tissues of both face and scalp. We must ascribe to the muscle cells of the developing heart an equally great power to undergo collective migration and to rearrange themselves in orderly but complex formations. In the third place, I have been able to satisfy myself that the *bulbus cordis*, however much it may change in form and in position in the various kinds of vertebrate heart, retains essentially the same function throughout its history.

Fig. 3.



Heart of a man, aged 20, in which the left ventricle is laid open to show a constricting ring below the orifice of the aorta. This ring separates the vestibule of the aorta from the rest of the left ventricle.

Functional Significance of the Bulbus Cordis.

To understand the functional significance of the *bulbus cordis*, one has to keep in mind that the vertebrate heart was originally a gill-pump. The bulbus is interposed between the gills and the ventricular pump as a safety mechanism. A respiratory network of vessels, whether it be spread out on gills or disposed on the walls of air chambers, is a delicate and weakly-supported structure, ill-designed to withstand sudden increases of ventricular output. No doubt, between the strokes of the ventricular pump, the musculature of the bulbus chamber maintains a steady flow of blood through the gills, but its main purpose seems to be that of a shock-absorber—a safety mechanism which prevents the ventricular pump, in states of extreme exertion, from damaging the respiratory network of vessels.

Medical men are apt to look on the heart as a systemic pump—as a pump for maintaining a head of pressure in the arteries of the body. Although this is rightly reckoned the chief action of the heart, it is really a secondary and recent function which came about when gills began to be displaced by lungs.[8] The main changes which have transformed the heart of the fish into that of the mammal are those connected with the evolution of an effective pump for the arterial system of the body. These changes ended in a complete obliteration of that part of the bulbus which intervened between the left ventricle and systemic aorta. By the obliteration of this part of the bulb it became possible for the ventricular musculature to lay direct hold of the commencement of the aorta, and to pump the blood directly into the arterial system.

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[3] My subsequent papers will be found in the following publications: Malformations of the Bulbus Cordis. Studies in Pathology. Edited by Prof. William Bulloch (Aberdeen, 1906). Malformations of the Heart, The Lancet, August 7th, 14th, 21st, 1909. Specimens of Abnormal Heart, Jour. of Anat., 1912, xlvi., 211. Very important contributions to our knowledge of bulbus abnormalities have been made in more recent years by Dr. Alexander Spitzer of Vienna (Ueber den Bauplan des normalen und missbildeten Herzens, Virchow's Archiv, 1923, Bd. ccxliii., 81–272) and by Dr. Jane Robertson (Comparative Anatomy of the *Bulbus Cordis*, with special reference to Abnormal Position of the Great Vessels, Jour. of Path., 1913, xviii., pp. 191–210, 211–217).

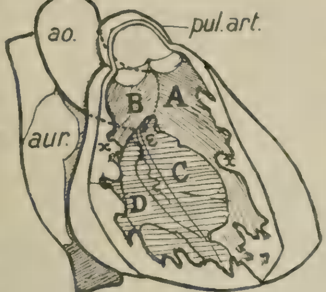
[4] Development of the Human Heart, Amer. Jour. Anat., 1912, xiii., 249.

[5] Formation of Pars membranacea sept., Jour. Anat., 1917, li., 19.

[6] Development of the Heart in Man, Trans. Roy. Soc. Edin., 1918, lii., 257.

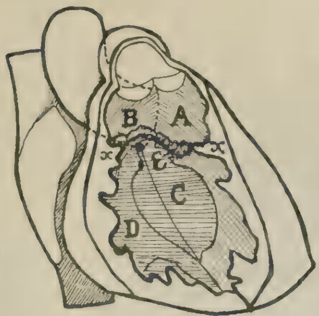
[7] See Healing as a Factor in Evolution, Brit. Med. Jour., 1921, ii., 137.

FIG. 4.



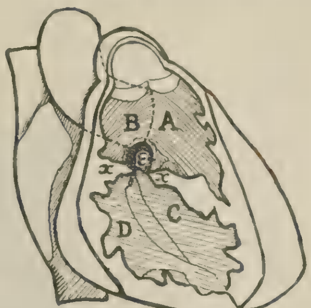
The right ventricle of the normal human heart, laid open. A, left infundibular band. B, right infundibular band. C, body of right ventricular cavity. D, on the tricuspid valve. *x*, *x*, limits of the infundibular or bulbus cavity.

FIG. 5.



A condition in which the infundibular cavity is imperfectly expanded, its orifice being surrounded by thickened endocardial tissue. Letters as before.

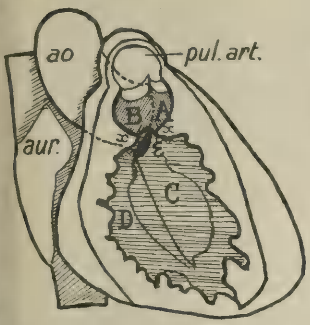
FIG. 6.



A stage in which the arrest of the infundibular expansion is less marked than in Fig. 5, but the orifice is still marked by a margin of thickened endocardium. The interventricular orifice is seen to lie below the infundibular orifice of the fully expanded infundibular or bulbus cavity.

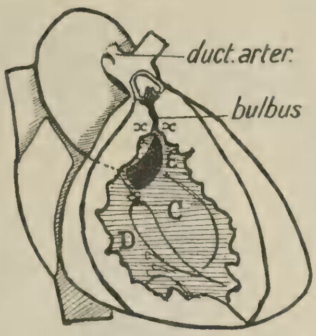
In the evolution of the mammalian right ventricle parts of the old heart were transformed and utilised. In Fig. 10 are shown the three elements out of which the respiratory blood pump has been compounded. There is in the first place the body of the right ventricle—that part in which the tricuspid valve lies. It represents a highly modified part of the old common ventricle. There is, in the second place, the infundibular cavity—that part of the ventricle which lies above the level of the tricuspid orifice and the moderator band. This element is derived from the ancient bulbus—that part which intervened between the common ventricle and the pulmonary aorta. The bulbar cavity, although merged in the right ventricle and overwhelmed by ventricular musculature, still serves, as the original bulbus did, as a safety mechanism for the vascular network of the lungs.[9] Then, in the right ventricle, there is a third or apical element. This is the last part of the right ventricle to appear in the course of evolution and development, and is formed by a delamination of the outer muscular coat from the central core of the main or left ventricle. The right ventricle is but a side-pocket on the wall of the left ventricle.

FIG. 7.



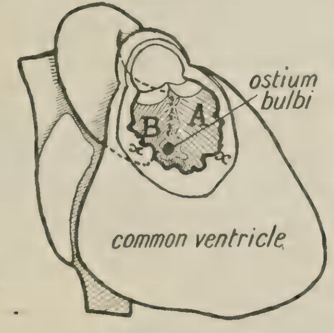
A stage in which the infundibular cavity remains as a small endocardially lined chamber—the commonest of all forms of cardiac abnormality. Letters as before.

FIG. 8.



A stage in which the infundibular cavity (or bulbus element) remains as a narrow channel with thickened lining.

FIG. 9.



Condition in which the infundibular element remains as a separate cavity. It opens from a common ventricle—one in which the interventricular septum is absent or imperfectly formed.

Anatomy of Infundibular Cavity of Right Ventricle.

Having thus outlined the history of the bulb of the ancient heart and shown that all that now remains of it in the human organ is the infundibular cavity of the right ventricle, I now turn to the anatomy of this neglected, but as I suppose, important part of the heart. In Fig. 11 is shown the right aspect of a human heart, in which the ventricles are in a state of contraction or systole. The epicardium has been dissected away to show the arrangement of the muscular fibres, the auriculo-ventricular canal of the right side, and the origin of the aorta. The root of the aorta is seen to dip down behind the infundibulum (B) and to become fused with the canal of the right auricle. Behind, it becomes fused with the canal of the left auricle. In these junctional regions all traces of both bulbus and ventricle have been obliterated, the aorta coming into direct union with original parts of the common auricular canal. It is otherwise at the commencement of the pulmonary artery; here we find the infundibular part of the right ventricle masking the origin of the aorta. Its outer fibres are arranged as a series of horse-shoe loops, which encircle the infundibulum. These loops will be seen, as the infundibulum is traced downwards, to cease abruptly above the point marked D in Fig. 11, but when traced along the auricular margin of the infundibulum (Fig. 11, C), they merge with the spiral fibres which arise from the base of the right ventricle. This is because the bulbus element, as it expands, always extends to the base of the right ventricle, in front of the tricuspid orifice. Thus we have on the right side of the heart a special muscular chamber interposed between the pulmonary aorta and the right auricular canal. This is the persistent part of the original *bulbus cordis*, which, as we have seen, becomes obliterated on the left side of the heart.

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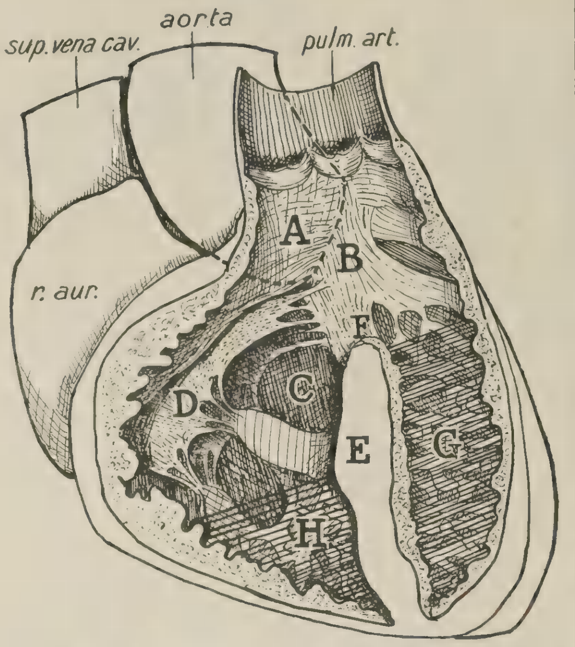
[8] This matter has been ably discussed by Dr. Alex. Spitzer, Ueber die Ursache der Zweiteilung des Wirbeltierherzens, Archiv für Entwicklungsmech, Bd. xlv., p. 686, 1921, Bd. xlvii., p. 512.

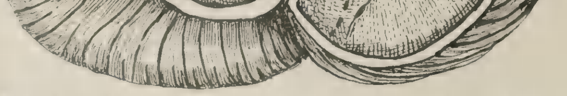
[9] It was my intention to follow out the history of the *bulbus cordis* in the Dipnoi (mudfishes), Amphibia, and Reptilia, and show that in all of them this element of the heart retains its original function—namely, the safeguarding of the capillary system of the lungs from high and prolonged accessions of blood pressure. To have done so would have taken me too far afield. In the Dipnoi and Amphibia the bulbus still lies above and separate from the ventricles; in Reptilia it becomes submerged in the ventricles and surrounded by ventricular musculature. It is quite true that in all of these vertebrate types the bulb has become a mechanism for directing the venous blood to the lungs, but it is able to perform this function just because of its original purpose—namely, its power of preventing high pressures passing into the pulmonary arteries.

FIG. 10.



Drawing of the right ventricle of a human heart in the Museum of the Royal College of Surgeons, in which the various elements of the right ventricle are imperfectly fused. This specimen was prepared by John Hunter. A, right septal band. B, left septal band. C, body of right ventricle. D, the tricuspid valve. E, septum of right ventricle. F, moderator band. G, part of right ventricle formed by an extension from the bulbus cavity. H, part formed by an extension from the body of the right ventricle.

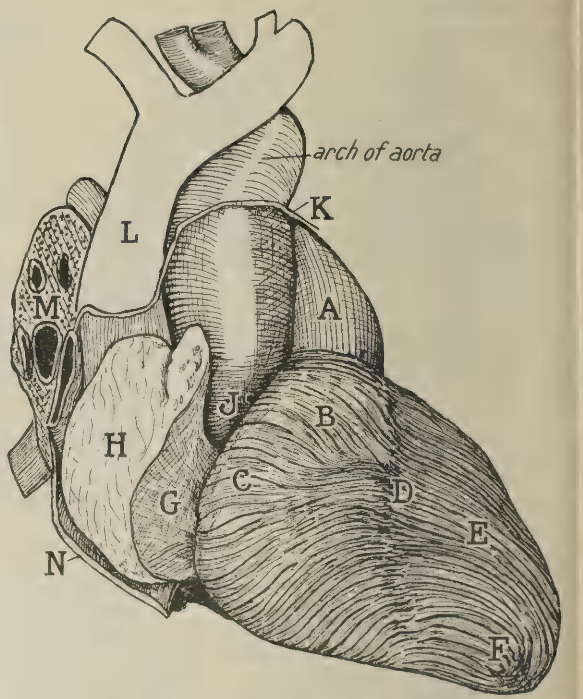
FIG. 12.



View of the base of a human heart in which the ventricular muscle is in a state of contraction or systole. A, the left *a.-v.* orifice, the letter being placed on the anterior cusp of the mitral. B, the right *a.-v.* orifice, the letter being placed on the septal cusp. C, the right coronary cusp of the aortic orifice; the underlying septal wall of the left ventricle is indicated. D, the left septal cusp of the pulmonary orifice. E, infundibulum (bulbus element) of right ventricle. F, base of right ventricle, into which the infundibular series of muscular fibres is continued. G, triangular basal area explained in text.

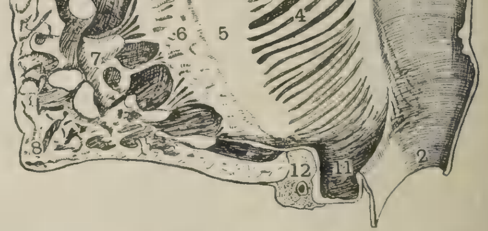
To understand why I insist on regarding the infundibulum of the right ventricle not only as a

FIG. 11.



Dissection of the right aspect of an adult human heart, the ventricles being in a state of contraction. A, pulmonary artery. B, infundibulum. C, base of right ventricle. D, anterior interventricular sulcus at the point where the circular fibres of the infundibulum cease. E, outer spiral fibres of left ventricle. F, vortex of apex. G, right auriculo-ventricular canal. H, right auricle. J, root of aorta; the origin of right coronary artery is shown. K, attachment of pericardium. L, superior vena cava. M, root of right lung. N, pericardium.

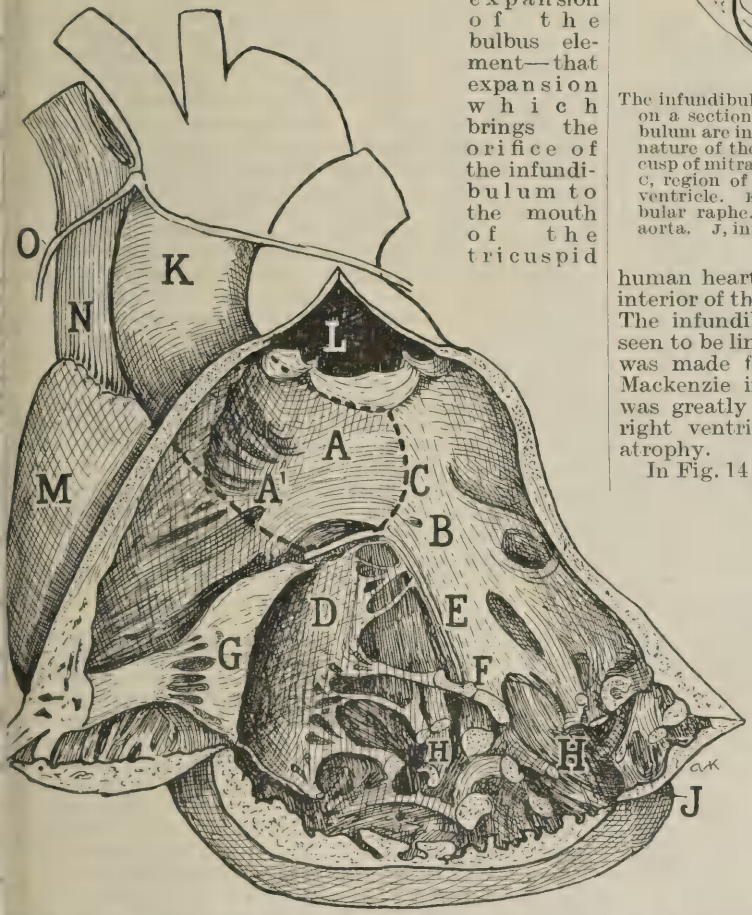
FIG. 13.



The right wall of a heart detached and viewed on its internal aspect to show the separation of the infundibular part (9) of the right ventricle. (1) Superior vena cava. (2) Inferior vena cava. (3) Terminal band. (4) Pectinate bands. (5) Auricular canal. (6) Lateral valve of tricuspid. (7) Musculi papillares. (8) Apex of right ventricle. (9) Interior of infundibulum with its lining of longitudinal fibres exposed. (10) Commencement of pulmonary aorta.

separate morphological but also as a distinct physiological element of the heart, we must note its appearance as seen in a basal view, such as is represented in Fig. 12. The orifice of the aorta, with its semilunar valves, which mark the termination of the original cardiac tube, is seen to emerge from the centre of the base, in the angle between the left and right auriculo-ventricular orifices. The lesser curvature of the embryonic heart has disappeared and brought the aortic orifice in juxtaposition with the auricular canal. Both mitral and aortic orifices lie in the embrace of the circular base of the left ventricle. Then in front of the aorta is the pulmonary orifice with, attached to it and forming a very distinct part of the base of the heart, the infundibulum or bulbus element of the right ventricle (Fig. 12, E). The horseshoe fibres of the infundibulum extend towards the right *a.-v.* orifice, becoming continuous with the basal fibres of the right ventricle. Behind the infundibulum and occupying the angle between the aorta and the right *a.-v.* orifice is a peculiar triangular muscular area (Fig. 12, G) which, so far as I know, has hitherto passed unnoticed. I would name it the triangular basal area. Of its nature, I think, there can be no doubt. It is the only part of the anterior base of the right ventricle which has escaped the eruptive expansion of the bulbus element—that expansion which brings the orifice of the infundibulum to the mouth of the tricuspid orifice. A view of the base of the heart confirms the impression that the infundibulum represents a separate functional element of the heart.

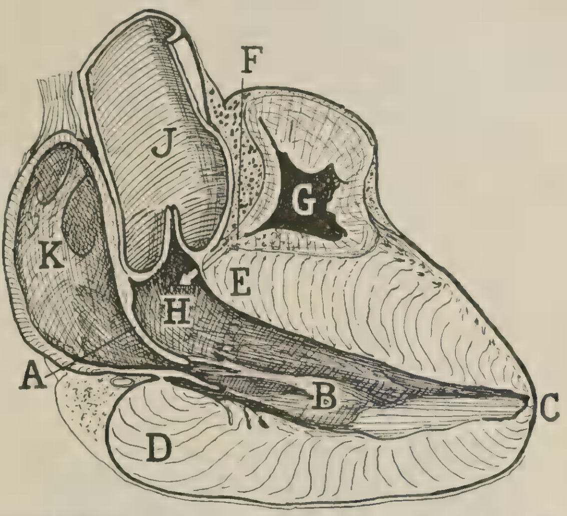
FIG. 15.



he right ventricle of a normal human heart thrown open to show the septal bands of the infundibulum or bulbus element. The ventricle is in a state of relaxation or diastole. A, right septal band, its terminal fasciculi (A^1) ending in the infundibular recesses seen at (C) in Fig. 11. B, left septal band. C, septal raphe corresponding to the origin of the aorta and marking the site at which the bulbus cushions meet and fuse, thus separating the infundibulum from the aortic vestibule D, on the septal cusp of the tricuspid orifice; just above D is indicated the position of the main trunk of the *a.-v.* bundle. E, the right branch of the *a.-v.* bundle descending to the moderator band (F). G, anterior flap of tricuspid valve with musculus papillaris. H H, trabecular parts of the right ventricle formed by delamination. J, apex of left ventricle. K, ascending aorta; the part which lies behind the infundibulum is indicated by stippled lines. L, the commencement of the pulmonary aorta opened up to expose the semilunar valves. M, right auricle. N, superior vena cava. O, pericardium.

Another view of the infundibulum of the right ventricle is given in Fig. 13. The right wall of a human heart has been separated, so as to expose the interior of the lateral wall of both auricle and ventricle. The infundibular cavity is sharply demarcated and seen to be lined with longitudinal fibres. This drawing was made from a heart sent to me by Sir James Mackenzie in 1906—one in which the right auricle was greatly dilated, while the apical region of the right ventricle had undergone a marked degree of atrophy.

FIG. 14.

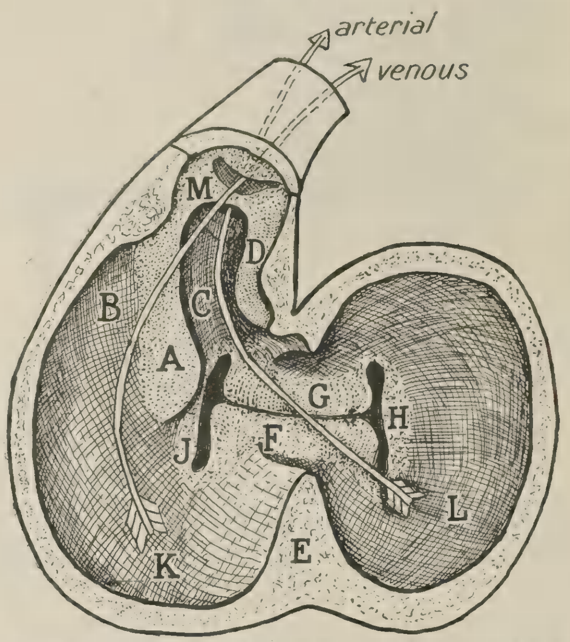


The infundibulum, left ventricle, left auricle, and aorta exposed on a section. The walls of the ventricle and of the infundibulum are in a state of almost complete systole. The separate nature of the infundibulum may be recognised. A, anterior cusp of mitral in section. B, musculi papillares of left ventricle. C, region of apical vortex. D, free or auricular base of left ventricle. E, fixed or aortic base of left ventricle. F, infundibular raphe. G, interior of infundibulum. H, vestibule of aorta. J, interior of aorta. K, interior of left auricle.

In Fig. 14 a view of the infundibular chamber is given in section. The section has been made in such a way as to detach the right side of the heart, including the septal wall of the left ventricle, thus exposing the interior of this chamber. The left ventricle was in a state of almost complete systole. Such a section again emphasises the separate nature of the infundibulum; it can be seen to be superimposed upon and independent of the ventricular system. In such a section as is shown in Fig. 14, an angle or recess is seen to pass towards the base of the adjacent semilunar cusp of the aorta. Along this recess lies the infundibular raphe (see Fig. 15). If this raphe were again opened up as indicated by the arrow on Fig. 14, a developmental stage being thus reproduced, the infundibulum would again communicate with the vestibule of the aorta. As already mentioned, a remnant of the bulbus may persist under the aorta, but usually the subaortic part of the bulb disappears completely and the left ventricle comes by a direct attachment to the aorta. In Fig. 14 the anterior cusp of the mitral is shown in section. The tissue in the base of this cusp represents all that is left of the lesser curvature of the bulbo-ventricular tube of the primitive heart.

In Fig. 15 the dissection of the infundibular or bulbus cavity is carried a stage farther. The right ventricle of a normal human heart has been thrown open; the ventricular musculature is relaxed—in the condition of diastole. On the septal wall of the infundibulum is to be seen the great right septal band (A); it sweeps to the right, over the nearest part of the tricuspid orifice, branching into numerous muscular fasciculi terminating in recesses which were produced as the developing bulbus cavity expanded towards the right auricle. On the left side of the infundibulum is to be seen the left septal band made up of two parts, an upper in which loop-shaped fibres of the infundibulum commence, and a stout raised band which descends on the septal wall of the right ventricle to end in the trabecular musculature of the apical region. On the septal wall of the infundibulum, between the origins of bands A and B, is to be seen an irregular line or raphe (Fig. 15, C) which marks the junction or union of what are now known as the right and left bulbus cushions (Fig. 16). By the union of these cushions the infundibular and progressive part of the *bulbus cordis* is cut off from the retrograde part which becomes included in the vestibule of the aorta. The musculature of the right septal band invades and occupies the right bulbus cushion (Fig. 16, A). In this manner the right septal band comes to have its origin from the root of the aorta. The left septal band invades the left bulbus cushion (Fig. 16 D,) and thus comes into union with the right band and with the commencement of the aorta.

Fig. 16.



From a model made by Prof. J. E. S. Frazer to show a stage in the transformation of the *bulbus cordis* of the human heart towards the end of the sixth week of development. The anterior wall of the ventricle and bulbus have been removed to expose the interior of the heart. A, right bulbus cushion dividing the infundibular or right part of the bulb (B) from the aortic or left part of the bulb (C). D, left bulbus cushion into which grows the musculature of the left septal band. E, interventricular septum; its musculature is entering the posterior endocardial cushion of the auricular canal (F). G, anterior endocardial cushion of auricular canal. H, left or mitral orifice. J, right or tricuspid orifice. K, right ventricle. L, left ventricle. M, the inter-aortic septum with the cushions of the semilunar valves. The arrows indicate the course of blood from the ventricles to the pulmonary and systemic divisions of the primitive aorta. At this stage the left bulbus connects the aorta to the left ventricle. Later, it will become obliterated, bringing the aorta to the level of the endocardial cushions.

In Fig. 15 I have indicated the position of the *a.-v.* bundle, and a glance at its disposition shows us that these septal bands of the infundibulum lie outside the musculature immediately concerned in the ejection of blood from the right ventricle. The main bundle (immediately above D in Fig. 15) marks the upper margin of the true interventricular septum. On reaching the left septal band (B) the bundle at once divides into its right and left branches. The right branch descends on or near the margin of the right septal band to reach the moderator band. All of the right ventricle which lies above the main bundle and in front of its right branch is bulbar or infundibular in origin. The left septal band is developed in all reptilian hearts and has been erroneously identified as the interventricular septum. It is bulbar in its origin, and represents the oldest element now included in the interventricular septum. The right septal band is a later structure, one which appeared during the early evolution of the mammalian heart. Thus, from a structural and historical point of view we have every reason to suspect that the infundibulum of the right ventricle must play a particular and distinctive rôle in the physiology of the pulmonary circulation.

Still more light is thrown on the origin and nature of the *bulbus cordis* if we examine the human heart towards the end of the sixth week of development—a stage shown in Fig. 16. In this diagram—taken from a model prepared by Prof. Frazer, it has been necessary to cut away the anterior wall of the ventricles and of the bulbus to expose the interior of the heart. The process of subdivision of the bulbus cavity is in active operation. On the right side of the bulbus cavity a ridge of endocardial tissue is being formed—the right bulbus ridge (Fig. 16, A). As the musculature of the ventricle spreads upwards to overwhelm the bulbus cavity, part of it invades this cushion and forms the right septal band represented in Fig. 15, A. On the opposite or left-hand side of the bulbus another and older endocardial ridge (Fig. 15, D) is growing towards the right ridge. This ridge, too, becomes invaded by musculature which grows into it from the bulbo-ventricular junction, and in this way the left septal band (Fig. 15, B) comes into existence. At this stage the left or aortic part of the bulbus (Fig. 16, C) forms a long passage leading from the left side of the common ventricle to the aortic valves. As already mentioned, this part of the bulbus becomes obliterated in the course of development, the aortic semilunar valves being thus brought down to lie in front of the auriculo-ventricular canal. The main or right part of the bulbus—the part which forms the infundibulum—has been removed in Fig. 16 to expose the ridges on the interior of the chamber. It is the anterior part of the bulbus—the part which is cut away—which undergoes the greatest degree of expansion.

SUMMARY.

Thus I have laid before you evidence which seems to me to demonstrate that the infundibulum of the right ventricle must be regarded as a distinct constituent of the heart. The evidence supplied by comparative anatomy and by embryology should leave us in no doubt concerning this conclusion. A survey of the anatomy of the infundibulum shows us that, although its cavity is now merged into that of the right ventricle, yet its limits can still be identified. The evidence which is still lacking relates to the exact function of this part of the heart. The evidence of comparative anatomy leads one to regard it as serving as a safety mechanism for the pulmonary circulation. In the hearts of Dipnoi, Amphibia, and Reptilia, the blood which leaves the common ventricle at the beginning of systole passes through the bulbus and is allowed to enter the pulmonary circulation. As the systolic pressure rises the valvular mechanism of the bulbus shuts off the pulmonary circulation, thus safeguarding the vascular network of the lungs. As the systolic pressure rises the bulbus shunts the blood into the systemic aortæ. Certain it is that in the mammalian heart the musculature of the infundibulum passes into action later than that of the body of the right ventricle. Further, I believe that future investigation will show that the infundibular chamber and its musculature only come into effective action during periods of great exertion and stress. At rest the right ventricle of a man pumps about three litres of blood into the lungs per minute, but in periods of stress, as Prof. A. V. Hill has demonstrated, the output may rise to 30 litres per minute. In such conditions of cardiac stress the cavity of the infundibulum intervenes between the driving power of the right ventricle and the pulmonary circulation, and must, I think, exercise a moderating influence.

ENGLISH PSYCHIATRY: NEW LAMPS FOR OLD.

BY EDWIN GOODALL, C.B.E., M.D., B.S. LOND., F.R.C.P. LOND.,

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THE second instruction to the recently appointed Royal Commission on Lunacy Law and Administration and Mental Disorder is in the following terms:—

> "To consider, as regards England and Wales, the extent to which provision is or should be made for the treatment without certification of persons suffering from mental disorder; and to make recommendations."

To ascertain the extent to which provision is made constitutes an easy task. Always excluding that bright particular star in the psychiatric firmament, the Maudsley Hospital, provision is as good as non-existent, judged by the criterion of what is done in other countries. Neither should the Commission find any difficulty in making up their minds, and quickly, as to the provision which should be made. It so happens that the first report of the Maudsley Hospital for the treatment without certification of persons suffering from mental disorder, upon which THE LANCET published a leading article, has lately been issued.

Allowance must be made for a first report of an undertaking without precedent in this country; nevertheless, in my judgment it furnishes a complete answer to the inquiry as to future practice which is embodied in the above reference. It is much to be desired that the Commission should pay a visit to the hospital.

To appoint a Commission, in this year of grace, to consider whether provision for the above purpose should be made, is in itself a humiliating reflection upon the status of our country in matters psychiatrical. What must they think of us at Utrecht, at Munich, at Boston, at all the numerous centres of medical education on the Continent of Europe and America, at which treatment without certification in psychiatric clinics has for long years been practised?

The first report of the Maudsley Hospital, the material for which, I trust, may be suitably elaborated for publication, is the most refreshing thing in my long experience of British psychiatry, "amidst the encircling gloom" of which it constitutes the "kindly light."

An Out-Patient Department in Psychiatry.

An out-patient department in psychiatry has been functioning, amongst other out-patient departments, at the Cardiff Royal Infirmary once weekly for four and a half years. This was established to pave the way for an indoor clinic which, it was hoped, the passage of an early Mental Treatment Bill might render feasible. In recommending this step to the Committee of Visitors of the Cardiff Mental Hospital and the authorities of the infirmary I realised that the out-patient clinic could never be a complete success without the corresponding in-patient one, the latter to receive not merely borderland but certifiable cases, which, however, need not be certified. It was further recognised that the indoor clinic could not be created merely by the conversion of ordinary hospital wards, or of a taken-over building, but must be erected for the purpose.

In the Maudsley report Dr. E. Mapother states that the out-patient department forms the main channel of admission; 334 out of the total 452 admitted to the wards attended there in the first instance. Most cases go to the out-patient department "with a view to admission to the hospital." "Continued treatment in the out-patient department has been undertaken in relatively few cases so far, for various reasons. Treatment of cases likely to benefit by this is generally more efficacious in the wards." This is entirely in accordance with my experience; I should say that seven-tenths of the cases which I have seen required to be taken in. The lack of wards cripples our efforts in Cardiff. The experience of sending psychopathic cases into the ordinary medical wards of the infirmary, obtained by the kind collaboration of the physicians upon the staff, has shown the unsuitability of this procedure. One has, therefore, only been able, under this grave disability, to do a limited amount of good to applicants for relief. These have been found, for the most part, to be only too ready to go into a suitable hospital, but not willing to go out to the "asylum."

The physician in charge of the clinic also serves a useful function by seeing cases transferred to him from the other out-patient clinics, and cases in the wards upon which his advice is sought. A further useful purpose is served by this clinic in dealing with the patients of the local mental hospital who are out on probation. These cases are finally "signed off" at the clinic.

To those who, proposing to set up a similar out-patient clinic, have consulted me, my recommendation has been to abstain from this course until an indoor clinic in conjunction therewith can be arranged.

The Case for Direct Admission.

I would borrow another peg or two from Dr. Mapother's report upon which to festoon personal experiences. Thus, it is recorded that out of 894 out-patients only 46 were sent from Poor-law hospitals and observation wards. This number is considered disappointing, in view of the very large number of entirely suitable patients suffering from various psychoses who are annually certified in the above institutions and sent to the mental hospitals of the county, and it is suggested that the relative simplicity of procedure favours the continuance of certification of cases which could be sent to the Maudsley Hospital. It would, indeed, appear to be "tawdry easy" to deposit cases at the mental hospital through the medium of the Poor-law. At the annual visit of the Commissioners of the Board of Control to the Cardiff Mental Hospital in December, 1921, the following criticism was made:—

> "On inquiring into the mode of admission here, I regret to learn how few cases are received direct from their homes, no less than 158 out of 169 having been compelled—most of them, I suppose, by a relieving officer's three-day order under Section 20 of the 1890 Lunacy Act—to pass through the Poor-law institution on their way here. In many cases this must be an unnecessarily disturbing proceeding. Cases needing mental hospital treatment should be got there as quickly as possible, and the use of Section 20, framed to meet emergencies, should be restricted to urgent cases."

Looking into this point for the past two years, I find that, in 1922, 95·9 per cent. of males and 91·5 per cent. of females admitted came from the City Lodge, (Union Institution). Like figures for 1923 were 98·9 per cent. and 93·9 per cent., respectively.

Under the scheme for dealing with mental disorders in areas controlled by local authorities which I outline hereunder, cases of insanity would be withdrawn from the administration of the Poor-law, with the exception of senile cases, harmless end-products of the disease, and suitable cases of congenital mental defect. Large numbers of cases are annually received into the Cardiff City Mental Hospital which are obviously cases for a psychiatric clinic in association with a general hospital, unconnected with the lunacy laws, and for which judicial orders and medical certificates—as called for by these laws—and handling by the machinery of the Poor-law are wholly unnecessary and undesirable. Under present conditions there is no alternative.

In 1922, out of an average of direct admissions of 140, I find that 22 left recovered and relieved within three months, 19 within the next three months—or 41 (29 per cent.) within six months. Like figures for 1923, based on direct admissions numbering 192, were, respectively, 53, 25, and 78 (40 per cent.). If two pre-War Office occupation years be taken (1912 and 1913), for 1912, out of 170 direct admissions, 51 left recovered and relieved within three months, 26 within the next three months—or 77 (45 per cent.) within six months; like figures for 1913, based upon 170 direct admissions, were, respectively, 28, 23, and 51 (30 per cent.). In addition to the above, between the opening of the hospital in June, 1908, and 1914 (both dates inclusive), and from January, 1921, to the present time—intervening years being excluded as the hospital was in War Office occupation—35 patients were found "not insane" within a brief period of observation after admission. In my opinion, the great majority of the above cases could have been dealt with at a psychiatric clinic associated with the Cardiff Royal Infirmary, with great advantage to themselves and to students of medicine.

To dwell upon the manifold merits of this system in a medical journal at the present date is wholly superfluous. Something has been done since the Mental Hospitals Association (representing the managing committees of these institutions) was founded in 1919 to enlighten the members upon this subject, and to force to the front the medical aspect of the work which they control. But probably the majority of them are still far from appreciating that the gravest disability from which their recent and acute cases of mental disorder suffer lies in their segregation from the main current of disease, their remoteness from the centres of medical activity, and in the denial to them of the resources of medical science, combined, and applied regularly and systematically.

Briefly, the difference, to my mind, between the medical and non-medical points of view in regard to the matters before the Royal Commission is that the former would put Instruction No. 2 to the Commission first, whereas the latter would consider the order in which the instructions are stated as the natural and correct one, No. 1 reading as follows:—

> "To inquire, as regards England and Wales, into the existing law and administrative machinery in connexion with the certification, detention, and care of persons who are or are alleged to be of unsound mind."

In an article contributed to THE LANCET of Sept. 11th, 1920, entitled "Hospital Treatment of the Psychoses and Psychoneuroses," I described how these maladies could be brought into the comprehensive scheme for the hospital treatment of disease in general described in the interim report of the Consultative Council on Medical and Allied Services, which body was under the chairmanship of Lord Dawson. (What was done with this valuable report?) In it mental disease was merely dealt with, and in my opinion quite inadequately, under "Supplementary Services." I set out how full provision could be made for this form of disease under the main scheme. In this way disorders of health manifesting themselves chiefly, or most dramatically, as disorders of conduct (insanity) would be brought into line, in their early phases, with disorders of health in general, and receive all the benefits of the services of general physicians, surgeons, and specialists in all branches of medicine.

With an enlightened organisation of a service for mental disease on lines such as I venture to sketch hereunder, the function of "asylums" would be limited to the purpose mentioned in the scheme set out. These institutions would, in accordance with the inexorable demands of progress, become of secondary importance; enlargements of them and additions to their number would become increasingly rare, and their maintenance less costly.

Scheme for a Mental Hygiene Service.

I would suggest that the entire machinery for dealing with rate-supported insanity (in its widest sense) and mental defect in a given area be controlled by a Mental Hygiene Board composed of members of the local authority, and, if thought desirable, of coöpted members. This would deal with (*a*) prophylaxis and research, (*b*) early treatment, (*c*) care and treatment of the chronic delusional, other chronic and irrecoverable, (*d*) after-care, and (*e*) mental defect.

(*a*) The clinic in psychiatry would be the source of light and instruction as regards prophylaxis, alike for medical men, nurses, inspectors or similar officials of the Board, social service and after-care workers. There would be lectures on eugenics, on training and education of children, on appropriate occupation for persons with tainted inheritance, &c., and also an ambulatory service of lectures and demonstrations for outlying districts.

The principal clinic—that connected with the medical school—would, of course, be the main centre for research; research flowing in broad streams, and not sparsely trickling, as now, from some 12–13 per cent. of the rate-supported mental hospitals (vide annual reports of the Board of Control). At the best it would be idle to pretend that mental hospitals could compare with the main clinics in number or quality of workers, or in facilities for research.

(*b*) This would be conducted at the clinics (in- and out-patients) and their outlying branches in accordance with the scheme described in the interim report above referred to, with provision for mental maladies. Cases so treated, although mainly, would not only be borderland or early cases (with volition), but also persons definitely insane (without volition), as was properly allowed for in the Mental Treatment Bill, 1923, under adequate safeguards. For none of these would there be any question of judicial orders and certificates. The present asylums (mental hospitals) would only deal with early cases of insanity in so far as such exceeded the capacity of the clinics to deal with. These institutions would deal with cases under (*c*). As the entire financial arrangements under this scheme would be controlled by the local authority, the account for maintenance at mental hospitals would be met by the county or county borough treasurer, and not by the guardians, as now.

I think people should be allowed to enter public asylums as voluntary boarders if they wish to, although I cannot believe anyone would choose this course if provision were made for the treatment of mental disorders in connexion with general hospitals.

(*d*) After-care work would be dealt with by a committee responsible to the Mental Hygiene Board. Our experience in Cardiff will probably be useful in this matter. We have had an after-care system in operation about 18 months. The committee is composed of members of the Cardiff Mental Hospital Committee, of the guardians, and of the Cardiff League of Social Service. Its functions may be set out as follows:—

> To visit homes of patients about to be discharged on trial from the mental hospital with a view to ascertaining social and economical status of household, and to report to the visiting committee, with a recommendation whether or not financial help during the period of trial is desirable, for general maintenance, for purchase of clothes, or of tools, &c. To visit periodically during trial period with a view, generally, to support and advise the patient, and to advise his or her responsible relatives or guardians.
>
> To report to medical officer (who conducts an out-patient clinic at the Cardiff Royal Infirmary) anything desirable

to bring to his notice *re* progress of patient, or apparent slackness of latter in carrying out instructions.

To decide if any money grant desirable for purpose of special medicine not supplied by infirmary. To visit periodically, in suitable instances, after final discharge, and to render help and give advice; especially to assist in obtaining employment for females.

To arrange for rest and change for patients, as far as feasible, pending provision of cottage homes. To visit, at the hospital, patients about to be recommended out, prior to discharge, and others who might be discharged if suitable conditions for them could be arranged.

This committee reports regularly to the Mental Hospital Committee. All cases discharged on trial from the mental hospital attend the out-patient clinic, and are finally discharged by the committee upon a certificate of the medical officer. During and after this period they are under the supervision of the after-care committee. The same thing would, of course, be carried out on a much larger scale with patients of a psychiatric clinic.

The need for convalescent homes (cottage homes, or other) is acutely felt by us in this matter of after-care. These cannot be provided under present conditions, but the Mental Treatment Bill, 1923, contained a clause which allowed visiting committees to make provision for after-care. An after-care committee is an essential part of an organisation for dealing with mental disorders.

Social service and after-care work in connexion with the mentally disordered and defective classes is, like early treatment, in a very backward state in this country, compared with what obtains in the United States, and, I believe, also in Canada. This must be largely due to lack of power on the part of local authorities to spend money on the matter. In this connexion it should be noted that the Mental Treatment Bill provided that any expenses incurred by a visiting committee in connexion with the provision of facilities for early mental treatment—which facilities include hospital in- and out-patient treatment—should be defrayed by the local authority by which the committee is appointed.

(*e*) Mental defectives are already dealt with by the local authority, and would naturally fall to be cared for under the scheme above outlined. The work of a Mental Hygiene Board would, no doubt, benefit by being carried on in liaison with the local public health committee (and vice versa), but the sphere of work of the former is vast—too large, and of too special a nature, to permit of its being merely a branch of the present public health administration. My out-patient experience—and, I am sure, the experience of social service workers would bear this out—convinces me that once a mental hygiene service were in full swing an amount of suffering and disability in the domain of the psychoneuroses would be revealed which would astonish those administering the service.

Local Boards and National Council.

Mental hygiene boards could with mutual advantage work in coöperation with the recently created National Council for Mental Hygiene, which has the same objects, delegating the different aspects of the subject to different committees. I believe this organisation is destined to do good work. Its influence for good would be enhanced and its work facilitated by obtaining the experience and help of local boards, which in their turn must benefit by the experience and opportunities of a National Council which is in touch with like bodies in the United States and other countries. The boards should be represented on this Council.

Messrs. William Heinemann announce for publication early in the new year "Acute Infectious Diseases," a handbook for practitioners and students, by Dr. J. D. Rolleston, senior assistant medical officer, Grove Fever Hospital, based on the author's personal experience of the last 25 years and a study of the literature of some of the commoner acute infectious diseases.

AMŒBIC HEPATIC ABSCESS

TREATED WITH EMETINE ONLY.

By V. S. HODSON, M.V.O., M.B., B.Ch. Oxf.,
M.R.C.P. Lond.

Since publishing the record[1] of three cases successfully treated by this method, I have, myself, only had two cases which could be diagnosed as suffering from liver abscess. Before giving a short account of these I should like to refer to some of the literature.

What is a Liver Abscess?

In the first place, what is a liver abscess? Is it an abscess at all? In the strict sense of the word the answer must be in the negative, as it is no more an abscess than is a gumma, to which it is strictly analogous. The contents of the so-called hepatic abscess are dead and sterile, in contra-distinction to those of an ordinary pyogenic abscess. Abscesses as soon as found require to be opened. This has always been a sound surgical maxim, and as Ciotola[2] has urged, the condition being called an abscess it automatically calls for surgical intervention, whereas there being no abscess in the normal sense of the word, surgical intervention is usually neither necessary nor desirable.

The amœbic hepatic abscess can, for purposes of description, be regarded as consisting of four layers: (1) The contents, which consist of necrosed liver cells, amœbæ—but not invariably—red blood corpuscles, leucocytes, fat droplets, &c. (2) The lining of the cavity. This is very irregular and variable, and dependent on the depth of the destruction of the liver cells. (3) The zone of the amœbæ which are living in the liver tissue, which is undergoing the process of cytolysis. The not unusual failure to find amœbæ in the aspirated material is thus accounted for. (4) The zone of hyperæmia which, as I see it, is defensive, in the sense of actively fighting against the invading organisms, and protective in its endeavour to localise and imprison the enemy and its results.

In the course of his third Lettsomian lecture, delivered in 1922, Sir Leonard Rogers states that he has long thought and has proof that already formed single or multiple abscesses can be cured by emetine, and he mentions that cases have been recorded where patients with obvious abscesses have recovered under emetine without operation, but he adds that it is clearly advisable to hasten recovery by removing the sterile pus. This only serves to show how strong is surgical tradition. Dr. G. C. Low[4] has also written that "in borderland cases between hepatitis and hepatic abscess emetine should be pressed. It is often remarkable how symptoms which almost certainly denoted an abscess may all clear up and disappear under its influence."

Recorded Cases of Cure by Emetine Alone.

The literature is now quite rich in cases in which the diagnosis has been undoubted, and in which the results of medical treatment alone have been even more remarkable for their rapidity and completeness than in those treated with aspiration and emetine. One of the most remarkable is that recorded by Dr. T. R. M. Leonard.[5]

This patient was admitted to hospital on Sept. 18th, 1922 His general condition was serious. Temperature 102·4° F. pulse 102, respirations 36. He was emaciated and very weak and had been ill for three weeks. Scleræ jaundiced, tongue thickly coated. There was decided bulging of the liver below the costal margin for about four inches, and palpation gave the impression of a bag of fluid. Liver dullness extended to the nipple. The right lobe of the liver was also enlarged and palpable. Spleen appeared normal. Lungs and heart normal. Blood examination: malarial parasites present. A decided leucocytosis present. Stools: Ova of ascaris and amœbic cysts. There was a history of previously treated dysentery. Operative measures were refused by the patient, although exploratory puncture showed hepatic pus. Emetine was given gr. 1 mane et nocte. The temperature gradually came down, night-sweats and pain diminished, and the liver enlargement decreased very rapidly, and on the 26th—that is in one week—was normal, pains had gone, and the patient looked and felt considerably better. On the 30th patient was on full diet, and on the following day is noted to have made a complete recovery. He was discharged on Oct. 22nd, 1922.

A very similar case in a European has been recorded by Dr. Ingram Johnson.[6] This case also refused operation. G. L. Hartmann-Keppel[7] has recorded a number of successes for the treatment by medicine alone. He makes it clear that he is recording cases, not of simple or diffuse hepatitis, but definite abscesses of the liver and, on occasions, of respectable size. In Hartmann-Keppel's paper attention is drawn to the fact that in roughly 25 per cent. of cases there are multiple abscesses. As it is more than likely that the second or other abscesses will escape the aspirating needle, it seems fair to presume that, when recovery occurs in such cases, the favourable result is due to the emetine. If one abscess recovers in consequence of emetine it is reasonable to argue that the others would also.

Fatzi[8] concludes his account of a case of hepatic abscess cured with emetine by saying that, in all cases of amœbic hepatic abscess, wherever situated, one ought to give a full course of emetine before thinking of operation. Ciotola,[9] to whom reference has already been made, also reports a successful case, and emphasises the point that no one would think of operating on a gumma.

There are still upholders of active surgical interference, but the general tendency is to substitute aspiration for the larger operation. Bressot[10] sticks to surgery, but he admits the value of emetine. His figures, compared with those of cases treated by the milder method of aspiration and emetine, and with those treated by the mildest method of emetine alone, suggest that he might reconsider the matter with advantage. Ludlow,[11] whose experience is very great, has given up operation for aspiration and emetine, but has not yet taken the next step to emetine alone.

Manson-Bahr, Low, Pratt, and Gregg[12] published a series of 15 cases in which emphasis appeared to be laid on aspiration as having some special intrinsic merit. Its true value is shown in the early part of the article by the description of a case treated by the late Sir Patrick Manson before the days of emetine.

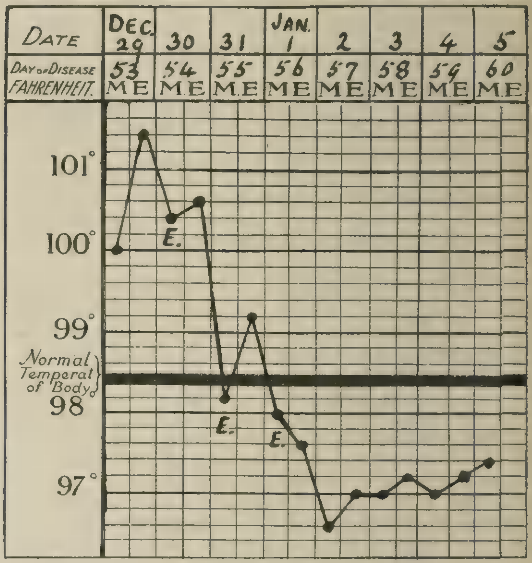
Case 8 seems to me to point the moral of giving emetine a fair trial before resorting to surgery, as in this case a young man had a rib resected to establish free drainage because the pus was too thick to be aspirated. Case 9 is quoted as a case in which a second abscess occurred after a prolonged interval. This is only what one ought to expect to meet with occasionally, and its comparative rarity speaks volumes for the efficacy of emetine in the treatment of amœbic infections. Case 13 is quoted as a recovery as remarkable as it was rapid. Dr. Leonard's case, recorded above, treated with emetine only compares very favourably with this patient. Case 14 is referred to specially for its short stay in hospital. Comparison should be made with my second case recorded below. Case 15 has a special interest for me. The patient was explored under a general anæsthetic and 3 oz. of very thick pus were aspirated. Symptoms partially relieved but gradually returned in spite of intramuscular emetine injections. The case is stated to be of interest as showing that emetine alone will not necessarily effect a cure without aspiration. This is, of course, not the only possible finding on the evidence. The effect of emetine is to kill off the amœbæ in the liver tissue so that, there being no longer an enemy to fight and contain, the circumferential hyperæmia automatically disappears and the direction of the flow, which for reasons of defence and protection had been centripetal, becomes centrifugal. The removal, therefore, of the abscess contents does no good but, owing to alterations of tension and of the natural direction of flow, is an interference which I regard as more likely to impede than assist the process of recovery.

Case Records.

My two cases are as follows:—

CASE 1.—This patient had already suffered and recovered from an amœbic hepatic abscess before I saw him on this occasion. He was one of my previous cases, when his abscess was in the lower part of the right lobe. His health had been completely satisfactory and he had been at work for the greater part of the time that had elapsed between the two attacks. I therefore regard it as justifiable to presume that the first abscess was cured and that the second arose de novo. On the occasion of his second illness the patient had been ill for some time before I saw him, and by the time he came to me the diagnosis was easy and the abscess quite impossible to miss. He was given emetine gr. 1 without delay, and the accuracy of the diagnosis was confirmed by the bursting of the abscess through the lung about two hours later. Recovery in this case was complete and uneventful on adequate doses of emetine, and when last seen he was in excellent health.

CASE 2.—This patient had rather a long history before I saw him. On admission to hospital he had enlargement of the liver in an upward and downward direction, with definite and localised bulging and tenderness below the costal margin. This man came under my care on Dec. 29th, 1923, and in addition to the local disease he was very anæmic and obviously very ill. Emetine in gr. 1 doses was given on the 30th and 31st, and on Jan. 1st, 6th, 7th, 13th, 14th, and 20th, 1924. When last seen on the 20th he was entirely restored to health. I attach his temperature chart while he was in hospital.



Temperature chart. E. = Emetine gr. i.

Conclusions.

As it has now been conclusively proved that even a large amœbic hepatic abscess can be entirely absorbed after and in consequence of the administration of emetine alone, I urge that surgical measures of all sorts should no longer be regarded as necessary until emetine has been given a fair chance. In the recorded cases improvement is very rapid, so that there is no long delay in decision as to success and failure, and no harm is done to the patient who, in a very high percentage of cases, is spared the trouble and anxiety which attaches to anæsthetics, aspirations, and other surgical interferences. There are two diseases which are analogous in many respects which no one in the one case and few in the other think of dealing with by active surgical interference. The gumma has been referred to, but the modern treatment of bone tuberculosis is the second obvious analogy, and only differs from the gumma and the amœbic hepatic abscess because in these there is the specific remedy to kill off the invading organisms, while in the case of tuberculosis the process of cure depends entirely on the destruction of the tubercle bacilli by the natural defence processes of the individual. In all these diseases once the cause has been removed the absorption of its more or less fluid effects offers no difficulty, and occurs with very great rapidity and completeness.

I should like to acknowledge my indebtedness to the *Tropical Diseases Bulletin*, which has furnished me with all my references.

(*Continued at foot of next page.*)

HYPOGLYCÆMIA.

BY P. J. CAMMIDGE, M.D. LOND.

THE clinical importance of hyperglycæmia has been recognised for a considerable time, but it is only since the introduction of the insulin treatment for diabetes that attention has been generally directed to the converse condition of hypoglycæmia. The discovery by the Toronto workers that the sudden introduction into the body of an excess of the internal secretion of the pancreas is liable to give rise to a series of characteristic symptoms which are associated with a rapid fall in the percentage of sugar in the blood is not the least important of the contributions to our knowledge made by these observers, for, apart from its practical value, it helps to throw light on the mechanism by which the normal sugar content of the blood is maintained.

The investigations I have carried out in conjunction with Mr. H. A. H. Howard and Mr. Cairns Forsyth have shown that (1) the fasting level of the blood-sugar is remarkably constant among mammals and is not related to their habitual diet; (2) the time and space relations of the variations in the sugar content of the blood following the ingestion of food are also strikingly similar in herbivorous, carnivorous, and omnivorous animals; (3) the upper limit attained by the blood-sugar after a meal is practically the same in all mammals, and is not directly dependent upon the amount of food taken or the nature of the diet, provided a certain minimum has been consumed.[1] Our observations have led us to the conclusion that the percentage of sugar in the blood, both in the fasting condition and after a meal, is determined by the interplay of a number of influences, some of which accelerate the production of sugar, while others inhibit the process and promote the formation of glycogen, but that under average conditions the food itself takes no direct part in the process.

Influences Regulating Sugar Content of Blood.

The most important influence regulating the sugar content of the blood is the balance between the activity of the glycogenolytic ferment of the tissues, particularly the liver, and a brake-like action exerted by the internal secretion of the pancreas over glycogenolysis. In the fasting state, this balance being constant in all mammals, the conversion of glycogen into sugar is also constant, and the sugar content of the blood varies therefore within very narrow limits, but when the balance is upset by the formation of the digestive secretions after food has been taken there is a temporary diminution of the control of the pancreas and a relative increase in glycogenolysis, with the result that the sugar content of the blood rises to a similar extent in herbivorous, carnivorous, and omnivorous animals, until the control of the pancreas is once more fully exerted, when it returns to the fasting level. This being the case, it is obvious that if the pancreatic brake is loaded, as it were, by introducing into the circulation an abnormal supply of the internal secretion of the pancreas from an extraneous source the sugar content of the blood will sink below the fasting level when no food has been taken, and the usual increase after a meal will be prevented, if the injection is given at an appropriate time before; effects which it is now well known insulin induces.

Hypoglycæmia may be produced in other ways than by artificially overloading the pancreatic brake, however. There is no evidence that an excess of the internal secretion of the pancreas is ever formed naturally, but there is both experimental and clinical evidence that a sub-normal sugar content in the blood may arise from defective formation of its glycogenolytic ferment by the liver. Our experiments upon animals have shown that when the hepatic functions are interfered with by the administration of a liver poison such as hydrazine phosphate, the percentage of sugar in the fasting blood sinks proportionately to the dose, and that when food is given the resulting blood-sugar curve is abnormally low until the animal has recovered from the effect of the drug; at the same time there is a corresponding fall in the amylolytic ferment of the blood, which as I have shown, is derived mainly from the liver. Other liver poisons, such as phosphorus, have a similar effect and give rise to hypoglycæmia. Mann has proved that the percentage of sugar in the blood diminishes steadily after the removal of the liver in animals, and that when it reaches about 0·05 per cent. characteristic symptoms appear and death soon follows. Life may be prolonged by the intravenous injection of dextrose, but a fatal termination cannot be prevented. More recently, Mann and Magath[2] have found that when the liver and pancreas are removed at the same time, the resulting condition is the same as though only the liver had been removed, and that even when the liver is excised from 24 to 96 hours after pancreatectomy the sugar content of the blood rapidly diminishes, and the same characteristic symptoms develop as after hepatectomy, although at a higher blood-sugar level. Here again glucose injections temporarily restore the animal to a normal state, but the effect is only transitory.

Mild Forms of Hypoglycæmia.

Mild forms of hypoglycæmia, due apparently to defects in the functional activity of the liver, are not at all uncommon. As a rule the patient's chief complaint is that he is lacking in energy and is easily tired, consecutive thought is difficult, and work requiring concentration is only carried out with effort. The symptoms are most pronounced in the morning and diminish as the day passes, especially if small frequent meals are taken. In the severer forms attacks of giddiness and even incoördination of movement are experienced.

In April, 1923, I was asked to advise a man, aged 46, who gave a history of the above symptoms dating back for about two years. Up to the age of 30 he had been a keen athlete, but subsequently became immersed in a sedentary occupation and took little exercise. As a consequence he suffered from constipation, and was troubled with heartburn and flatulency. He gradually lost his appetite, slept badly, and was frequently disturbed by nightmare. He had been subject to hay fever since a child, and latterly had had several attacks of urticaria, but otherwise had suffered from no definite illness. In the early part of 1918 he became very despondent and found his work a trouble. Subsequently he noticed he was easily tired, especially in the morning, but that he was better after a meal, and consequently formed the habit of eating food between his regular meals. Later in the year he began to suffer from attacks of "giddiness." At first these were slight and transitory, only occurring after unusual exertion, but ultimately he had several severe attacks while walking, and of such a type that his friends came to the conclusion he was intoxicated. As he was a total abstainer, he was greatly annoyed, and determined to have his condition thoroughly investigated. Examination of a 24-hours' collection of his urine showed no albumin, no sugar, and no acetone, but there was a marked excess of indican and a very pronounced reaction for urobilin. Quantitative analysis revealed an excess of amino-acid nitrogen (0·6 g.), but no other striking abnormality. A specimen of blood withdrawn from a vein, fasting, gave normal values for all the inorganic elements, but showed an excess of uric acid (10 mg. per cent.), amino-acid nitrogen (10 mg. per cent.), and phenol (14 mg. per cent.), with a low blood-sugar (45 mg. per cent.). These results pointed to there being abnormal decomposition in the

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[1] New Views on Diabetes Mellitus, 1923, p. 6.

[2] Arch. Int. Med., 1923, p. 797.

(*Continued from previous page.*)

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1. Jour. of Tropical Medicine, March, 1921.
2. Il Policlinico, Sez. Prat., December, 1923, p. 1655.
3. THE LANCET, 1922, i., 677.
4. Byam and Archibald: The Practice of Medicine in the Tropics.
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7. Revue de Chirurgie, 1923, lxi., 89–116.
8. Il Policlinico, Sez. Prat., 1922, xxix., 648.
9. Loc. cit.
10. La Presse Médicale, Sept. 2nd, 1922, p. 757.
11. China Medical Journal, February, 1924.
12. THE LANCET, 1923, i., 941.

contents of the intestine, with hepatic insufficiency and consequent toxæmia and hypoglycæmia. Examination of the fæces tended to confirm the diagnosis of abnormal decomposition in the contents of the intestine, and showed there was excessive peristalsis in the upper part of the bowel, but there was no evidence of any deficiency of pancreatic digestion. A serial examination of the patient's blood after a test breakfast containing protein 15 g., fat 40 g., and carbohydrate in the form of starch 40 g., but with no actual sugar, worked out as shown in Table I.

TABLE I.

Time taken.	Sugar per cent.	Difference value per cent.	Erythrocytes per c.mm.
Fasting	0·045	0·005	5,000,000
Breakfast :	+	+	+
½ hour after	0·069	0·004	4,960,000
1 ,, ,,	0·085	0·005	4,960,000
2 hours ,,	0·078	0·015	4,940,000
3 ,, ,,	0·045	0·035	4,900,000
4 ,, ,,	0·040	0·055	5,000,000

From Table I. it will be seen that, starting from a fasting value of 0·045 per cent., the maximum point attained by the blood-sugar was 0·085 per cent. one hour after the meal. The normal difference value before the meal and for an hour after was against there being any deficiency of the internal secretion of the pancreas, but the rapid rise in the third and fourth hours tended to confirm the diagnosis of hepatic insufficiency. No evidence of any serious disturbance of the functions of the other ductless glands was discovered. Next day the patient was given glucose 50 g., fasting, with the results shown in Table II., A.

TABLE II.

Time taken.	A. Dextrose 50 g. sugar per cent.	B. Lævulose 50 g. sugar per cent.
Fasting	0·045	0·050
¼ hour after S.	0·080	0·090
½ ,, ,,	0·090	0·124
1 ,, ,,	0·100	0·160
1½ hours ,,	0·088	0·122
2 ,, ,,	0·050	0·060

The character of the blood-sugar curve obtained tended to exclude any true diabetic tendency, but was consistent with a diagnosis of hepatic insufficiency. No sugar was found in the urine passed during the two hours of this test. It is noteworthy that on this day the patient volunteered the information that he felt better than he had done for some months. When a tolerance test with 50 g. of lævulose was tried the following day the maximum level attained by the blood-sugar was considerably higher than when dextrose had been given (Table II., B.), and examination of the urine passed during the two hours of the test showed that 5 g. of lævulose had been excreted, thus proving that lævulose was not metabolised as completely and efficiently as dextrose. A consideration of all the facts elicited by these examinations suggested that the patient's symptoms were due to hypoglycæmia dependent upon defects in the functional activity of the liver, accentuated by a toxæmia of hepatic and intestinal origin. He was treated accordingly, and has since had no recurrence of the "giddy" attacks, nor has he had any difficulty in carrying out his work, or in taking a reasonable amount of exercise without undue fatigue.

Rate of Conversion of Glycogen in Liver.

The rate at which glycogen is converted into sugar in the liver is largely determined by the control exerted by the internal secretion of the pancreas, but it is also influenced by the internal secretions of the other ductless glands and by the nervous system. The injection of epinephrin or pituitrin is the recognised method of rapidly mobilising sugar from the glycogen stores of the body to counteract the effects of an overdose of insulin, while, on the other hand, it is well known that hypoglycæmia occurs in Addison's disease and certain forms of hypopituitarism. Disturbances of carbohydrate metabolism due to defects in the functions of the ductless glands other than the pancreas are more common than is generally supposed, hyper-functions of the pituitary, thyroid, or suprarenals giving rise to a glycosuria which is eventually converted into a true pancreatic diabetes when secondary exhaustion of the pancreas supervenes, as it invariably does if the hyperglycæmia is not controlled by appropriate treatment, whereas hypo-function of these glands results in a diminished carbohydrate tolerance and a subnormal percentage of sugar in the blood, with consequent symptoms of perverted metabolism in other structures of the body. In the present state of our knowledge it is only possible to diagnose defects in the functions of the suprarenals in their earlier stages by exclusion; disturbances in the functions of the thyroid may be recognised by determinations of the basal metabolism and by Kottmann's test; hyper- or hypo-pituitarism may be inferred from the variations in the volume of the blood which take place after the ingestion of food, the former being associated with a dilution and the latter with a concentration as the percentage of sugar rises following the meal.

Blood-Sugar and Pituitary Function.

The increase in the percentage of sugar found in the blood after a meal in cases of pituitary disease is obviously not a true index of the actual state of carbohydrate metabolism, for in hyper-pituitarism the values obtained are too low, owing to the dilution which occurs, and in hypo-pituitarism they are too high, in consequence of the concentration which takes place as more sugar passes into the circulation. If a correct estimate is to be formed, the dilution in the one and the concentration in the other must be allowed for, otherwise a hyperglycæmia may be masked, or the true extent of a hypoglycæmia may not be recognised. The simplest method of detecting and estimating rapid changes in the volume of the blood such as occur in these cases is by making an erythrocyte count each time a sample of blood is taken for analysis; variations in the number of red cells per c.mm. distinctly in excess of the limit of experimental error will then show whether the blood is being diluted or concentrated and indicate the extent of the change. Normally, and in most cases where there are defects of carbohydrate metabolism, no material alteration takes place in the volume of the blood after a meal, and in my experience the occurrence of such a change is diagnostic of disturbances in the functions of the pituitary.

In March, 1922, I was consulted regarding a gentleman who had suddenly commenced to put on weight, and had at the same time become very lethargic and easily tired, a few months previously. A full chemical analysis of his fasting blood showed that most of the constituents, organic and inorganic, were abnormally low, excepting uric acid, which was absolutely high and relatively present in excess. A serial analysis of his blood before and after a test breakfast worked out as shown in Table III.

TABLE III.

Time taken.	Sugar found per cent.	Diff. val. per cent.	Erythrocytes.	Sugar allowing for vol. changes.
Fasting	0·050	0·004	3,600,000	0·050
½ hour after B.	0·150	0·000	5,600,000	0·096
1 ,, ,,	0·110	0·000	4,700,000	0·084
2 hours ,,	0·060	0·008	3,800,000	0·057
3 ,, ,,	0·050	0·004	3,500,000	0·050
4 ,, ,,	0·050	0·004	3,480,000	0·050

The figures in Table III. showed a low percentage of sugar before a meal, then a sharp rise half an hour after, followed by a rapid fall to slightly below the fasting level at the third hour. Comparison of the erythrocyte counts suggested that the wide sudden alterations found in the percentage of sugar were largely due to variations in the concentration of the blood, and that there was really much less change in the absolute amount of sugar, for if allowance is made for the varying volume indicated by the red cell counts, the figures shown in the last column of Table III. would be obtained. A test-meal of 50 g. of dextrose given the next day was followed by a blood-sugar curve of normal form and time relations, but, although the maximum percentage attained was not so high as is usually the case, an appreciable amount of sugar was excreted in the urine between half an hour and an hour and a half after it was taken. (Table IV.)

The glycosuria was probably due, in part at least, to the fact that the calcium content of the blood was abnormally low, 3 mg. per cent., thus causing unusual permeability of the kidneys for dextrose. The normal difference value of the fasting blood was against there being any deficiency of the external secretion of the pancreas, but the rise after the test-meal at the second hour, and following the glucose at the hour, pointed to there being some disturbance of the functions of the other ductless glands; as there was pronounced concentration of the blood when the percentage of sugar rose after the test-meal, hypo-function of the pituitary seemed the most likely diagnosis, possibly associated with defects in the parathyroids, which would account for there being an absolute as well as a relative deficiency of calcium in the blood. The effects of treatment tended to confirm this conclusion, for the patient quickly dropped to his normal weight and recovered his physical and mental vigour on a preparation containing pituitary and parathyroid. He has since had no recurrence of the symptoms as long as the gland preparation was being taken, but when an attempt was made to discontinue it they rapidly returned, so that the glandular deficiency would seem to be permanent.

TABLE IV.

Time taken.	Blood.		Urine.		
	Sugar per cent.	Diff. val. per cent.	C.cm.	Sugar per cent.	Sugar total.
Fasting	0·060	0·004	100	0·00	0·000
¼ hour after D. ..	0·064	0·000	10	0·03	0·003
½ ,, ,, ...	0·050	0·000	40	0·05	0·020
1 ,, ,, ...	0·090	0·008	20	1·50	0·300
1½ hours ,, ...	0·080	0·004	100	1·10	1·100
2 ,, ,, ...	0·050	0·004	75	0·08	0·060

Subnormal Percentage of Sugar in Fasting Blood.

A subnormal percentage of sugar, under 0·07 per cent., in the fasting blood is apparently always due to defective glycogenolysis arising from faults in the functions of the liver or lack of balance between the ductless glands, and particularly deficiency of the pituitary or thyroid. Sometimes, however, cases are met with where there is no evidence of any deficiency of the thyroid or pituitary, the sugar content of the fasting blood is not strikingly low, and yet glycosuria occurs after each meal with a blood-sugar which fails to reach the normal maximum. These are generally described as examples of "renal glycosuria," but, in many at least, the name is not altogether a happy one, since the primary cause of the condition is not in the kidneys. The whole blood analyses I have been carrying out in all my cases of glycosuria for some years have shown that in such cases there s almost invariably a low percentage of calcium, and I have found that treatment with calcium and parathyroid raises the percentage of sugar and usually prevents the glycosuria. It would therefore seem that the hypoglycæmia and excessive permeability of the kidneys for dextrose are essentially dependent upon defects in the functions of the parathyroids, and that the term "renal glycosuria" gives a misleading mpression of the true pathology of the condition.

As an example of this type of hypoglycæmia I may quote the case of a lady, aged 30, who was sent to me for treatment in March, 1922. Sugar had been discovered in her urine accidentally in 1920, and, although she had undergone several courses of treatment in the interval, the glycosuria had persisted. On making a serial analysis of her blood after a test breakfast, results were obtained as shown in Table V.

TABLE V.

Time taken.	Sugar per cent.	Diff. val. per cent.	Erythrocytes per c.mm.
Fasting	0·080	0·004	4,870,000
½ hour after B. ..	0·060	0·002	4,990,000
¾ ,, ,, ..	0·080	0·000	4,930,000
1 ,, ,, ..	0·090	0·000	4,930,000
2 hours ,, ..	0·100	0·006	4,940,000
3 ,, ,, ..	0·090	0·010	4,920,000
4 ,, ,, ..	0·080	0·020	4,930,000

The sugar content of the fasting blood was normal, and although traces of sugar were found in the urine passed after the meal, there was no hyperglycæmia—in fact, the percentage of sugar in the blood failed to reach the maximum level of about 0·14 per cent. usually attained by a healthy person after such a meal. The next day after 50 g. of dextrose had been taken, fasting, another serial analysis of the patient's blood worked out as shown in Table VI.

TABLE VI.

Time taken.	Sugar per cent.	Diff. val. per cent.	Erythrocytes per c.mm.
Fasting	0·080	0·004	4,870,000
¼ hour after D. ..	0·090	0·002	4,860,000
½ ,, ,, ..	0·104	0·004	4,860,000
1 ,, ,, ..	0·112	0·000	4,870,000
1½ hours ,, ..	0·100	0·004	4,860,000
2 ,, ,, ..	0·084	0·004	4,860,000

These results, like those given by the previous test, showed that there was no serious interference with carbohydrate metabolism, in spite of there being 3·2 g. (1·4 per cent.) of dextrose in the urine passed during the two hours of the test. Examination of the fæces revealed no abnormality, and an analysis of the whole blood gave normal figures excepting for calcium, which stood at 2·0 per cent., compared with the normal of 5·3 to 6·8 per cent. It seemed probable, therefore, that the persistent glycosuria from which the patient suffered was dependent upon excessive permeability of the kidneys for dextrose owing to a low calcium content of the blood serum. She was accordingly given calcium and parathyroid by the mouth, and allowed an ordinary mixed diet. On the first day after the treatment was commenced 10 g. of sugar were excreted in the urine, the next day the output dropped to 4·9 g., and the day after that to 3 g., at which it stood for two days more, after that no trace of sugar could be detected by Benedict's test. The treatment was continued for two months, then, as the urine had remained sugar-free, it was discontinued, and there has since been no recurrence of the glycosuria.

Cases are occasionally met with where parathyroid and calcium therapy has little or no effect on the hypoglycæmia and glycosuria; such are probably examples of essential renal glycosuria due to primary renal permeability, for all the chemical constituents of the blood, and not only the calcium, are present in subnormal percentages, although there is no reduction in the red cell count, and no evidence of defective carbohydrate metabolism.

Other causes of hypoglycæmia may occur theoretically, and probably exist, but those I have described appear to be the most frequently met with in clinical practice. It is interesting to note, however, in view of the statements recently made that substances having a similar effect on the blood-sugar to insulin have been prepared from animal tissues other than the mammalian pancreas and also from yeast and other vegetable sources, that injections of peptone or guanidine give rise to hypoglycæmia. The diagnosis of hypoglycæmia presents no difficulties if serial analyses of the blood are made under controlled conditions, and, as a rule, the probable cause can be determined with the help of the methods to which I have referred. Symptomatic treatment is only of temporary benefit, as is also the case with the converse condition of hyperglycæmia. If permanent improvement is to be effected in either, the ætiology must be worked out as completely as possible, and suitable measures must be taken to deal with the primary factor to which the particular disturbance of carbohydrate metabolism is ultimately due.

A cheque to complete £1000 for the Linen Fund of the Royal Free Hospital, inaugurated by Princess Marie Louise, was presented to her on Dec. 9th at the annual meeting of the Guild of Help.

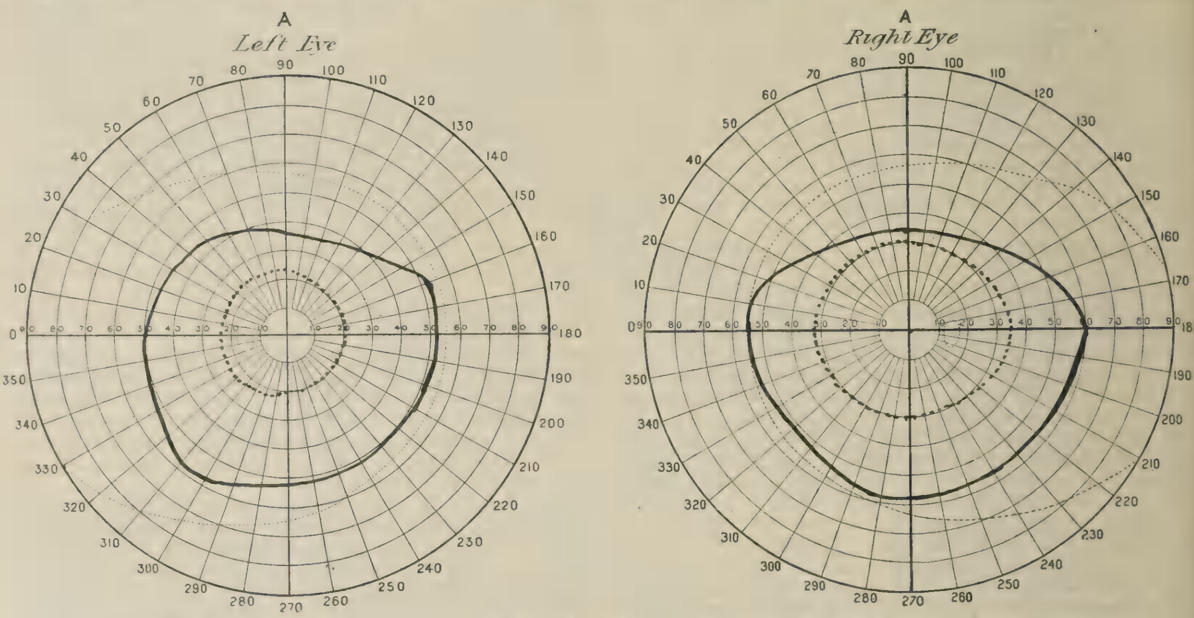
LIVINGSTONE COLLEGE.—The report of Livingstone College for the year 1923–24 states that in the 32 years which have elapsed since the College was founded 810 students have entered for the full course or for part of it, of whom 540 are still at work. The courses of the College are intended to supply missionaries who work in places where qualified medical aid is not immediately or even remotely obtainable with a minimum of medical knowledge. In the years since the war the number of prospective missionaries attending the College has fallen considerably, and financially the College does not receive the support which it deserves. It has a cash deficit of about £380, and there is need for structural repairs which the management cannot afford.

Clinical and Laboratory Notes.

A CASE OF
LATENT NASAL ACCESSORY SINUS DISEASE,
WITH MENTAL AND VISUAL IMPAIRMENT; OPERATION; RECOVERY.

By E. Watson-Williams, *M.C.*, M.B., M.Ch. Camb., F.R.C.S. Edin.

The following case is of unusual interest as illustrating a rapid recovery from very pronounced mental impairment, after treatment of a septic focus.



Visual fields for white. .... on April 12th, 1924. ———— on Sept. 3rd. No scotoma.

X. Y., male, aged 42, came to me early in February, 1924, complaining of running left ear. A radical mastoid operation had been performed in 1917, but the cavity had discharged ever since. There was a history of recurrent "catarrh," but never cacosmia. Nasal sinus disease was suspected, but on several inspections no definite evidence was observed.

At the end of March he complained of feeling very tired and depressed, unable to do his work, and of failing vision. His wife reported that his manner had recently become very "queer," and that his memory was failing. On inspection a definite post-nasal discharge was seen, mucoid in character. The man was at once admitted to hospital.

The report on his vision was as follows. Right eye, 6/12; left eye, 6/24. Visual fields much contracted. No scotoma. (See figure.) Wassermann reaction was negative; no history of syphilis.

Under local anæsthesia I explored the nasal accessory sinuses by the suction syringe method. The washings showed :—

Sinus.	Macroscopic appearance.	Microscopic appearance.	Culture result.
Right antrum.	Thick pus.	Pus.	*Staphylococcus aureus.*
Left ,,	,,	,,	,,
Right sphenoid.	Small flocculus of mucus.	Mucus.	No growth.
Left ,,	Clear return.	Nil.	,,

Colloidal silver was injected into all the cells.

Following this, there was a considerable improvement in the mental condition for a time, although he did not become fit to return to work. The vision remained the same, almost identical fields being found in the middle of May. By this time, however, the mental condition again became dull and clouded; his family doctor particularly noticed this. It was, in fact, our great difficulty, for the man refused operation, and it seemed impossible to get him to realise his danger. At this time, also, left sciatica, formerly not severe, became so bad that injection of the nerve was advised. I wished, however, to see whether an attack on the focus of toxic absorption would not do as much for him.

Eventually persuaded, he was early in June admitted to hospital, and I performed a double per-nasal antrostomy. Convalescence was uneventful, and he was so far recovered that he returned to work at the beginning of August. I saw him again in September, and made the following note: "His mind is clear, his memory good, he says his sight is perfect except for small print, and he feels and looks well." The ear healed, and he was not troubled with any sciatica. Seen again in October, the condition was as good. He has not lost work since he returned to it, and does a full day without difficulty. The figure shows the visual fields on Sept. 3rd. There is still some contraction, but much less than in April. Vision in both eyes 6/5.

The favourable result in this case was probably largely due to the operation not having been unduly postponed. The patient was employed delivering packages on a regular round: so marked was the dulling of intelligence, that he began to bring his employers' property home, unable either to remember where to deliver it or to realise that he should properly dispose of it. At one time, indeed, it seemed that his destination would be an asylum—or perhaps prison.

Clifton, Bristol.

A CASE OF
SYPHILITIC INFECTION IN A PATIENT SUFFERING FROM YAWS.

By Alan McKenzie, M.B., B.S. Lond.

(*From the Medical and Public Health Department, Rarotonga, Cook Islands.*)

The case here recorded is of considerable interest, although, owing to lack of laboratory facilities, a fuller investigation was impossible.

A male Polynesian, aged 20, was admitted to hospital in March, 1922, for a large traumatic ulcer of the leg and foot. Local treatment was applied, but the ulcer was slow in healing. It did not, however, present any abnormal features.

About April 1st I noticed a large number of "pimples" over his face and chest. Each of these was surrounded by a small area of desquamation. Two days later a small yellow spot was visible in the centre of each pustule, and in a few days they had developed into typical yaws. Each pustule was raised and of the size of a sixpence, and the bulk of the tissue was made up of the yellow cheesy matter distinctive of yaws.

He was treated with three injections of N.A.B. at intervals of a week, in all 1·1 g. of N.A.B. being given. I left on tour immediately after the last injection, and did not see him again until Feb. 20th, 1923. On the occasion of the last injection all the yaws had disappeared, and pigmented skin only was left.

He presented himself this year on account of a sore lip and nose. The lip, over an area of half a square inch, was covered with a typical secondary mucous syphilide. The meatus of the right nostril was occupied by a secondary yaw, typical in form. On making a more complete examination I discovered a large yaw between the nates, while on the penis was a hard Hunterian chancre occupying the prepuce. The inguinal glands were enlarged and hard. He also gave me a history of a recent sore throat. The chancre had appeared 10 days to a fortnight after intercourse with a known prostitute, and the other lesions had all appeared very shortly afterwards.

Under N.A.B., in weekly doses of 0·9 g., the symptoms rapidly cleared up and the patient is now quite free from obvious lesions. I made smear preparations from each lesion, and stained them with Giemsa, but saw no spirochætes.

To me this appears undoubtedly a case of syphilis following upon a partially cured attack of yaws. I have no doubt that when I examined the patient in February he was suffering from both yaws and syphilis. As a very tentative suggestion, might not the second attack of yaws be due to some residuum of infection from the previous attack exalted in virulence (or more probably by the using up of antibodies) by the invasion of a very closely allied organism? Still probable, perhaps, is a fresh infection with *S. pertenue* since, in my experience, there is no resistance to reinfection after the disease has apparently been cured. I have seen four cases of reinfection in which I have been certain of the primary sore in the second attack, and am convinced that the question of a relapse need not be entertained.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF MEDICINE, OTOLOGY, NEUROLOGY, AND LARYNGOLOGY.

NON-TUBERCULOUS MENINGITIS.

A MEETING of these combined sections was held on Dec. 10th, with Dr. ROBERT HUTCHISON, President of the Section of Medicine, in the chair, when a discussion took place on the causes, early recognition, and treatment of non-tuberculous meningitis.

The Point of View of the Physician.

Dr. HUGH THURSFIELD, who opened, said that the practice, during the past 25 years, of puncturing the spinal theca and examining the condition of the cerebro-spinal fluid, rare before that time, had added considerably to knowledge concerning pathological lesions of the meninges, yet many problems still awaited solution. One was the exact position of the condition known as meningismus. Clinically, there were cases presenting all the signs and symptoms characterising meningeal inflammation, yet with an apparently normal cerebro-spinal fluid. This was most frequently associated with the acute infections of children, such as pneumonia; also with marasmus, and in the acidosis and acetonæmia of older children. It was found, by laboratory experiment, that there was a stage in the development of meningitis when the cerebro-spinal fluid appeared to be normal, and he considered that meningismus was the first stage of a true meningitis, a stage in which the defensive mechanism prevented the onset of a further stage. The next degree, that of serous meningitis, came more before aural surgeons than physicians. In this stage there were changes in the protein content of the fluid and in the number of cells present in it, though on culture it was sterile, and the films showed no organisms. His experience of instances which passed to the frankly purulent stage was confined to a few cases of epidemic cerebrospinal fever which he saw in the first two years of the war. But this knowledge did not lessen the difficulty of the problem; it was necessary to learn to distinguish the cases of meningitis which were severe and dangerous from those of meningitis in which recovery was the rule. It was also necessary to recognise cases in which the cerebro-spinal fluid afforded evidence of true inflammation, and those in which, with all the symptoms and signs of meningitis, including profound changes in the fluid, the result was quite favourable.

What symptoms and signs, he asked, justified the diagnosis of meningitis? Mainly, the symptoms were those of any cerebral disturbance—headache, vomiting, delirium, coma, stupor; and among the signs squints, transient paralyses or clonuses, Kernig's sign, or Brudzinski's sign. Alterations in the cerebrospinal fluid placed the diagnostician on a much firmer footing. His view was that the normal cerebrospinal fluid was that which issued from the theca at the rate of about three drops per second, contained 0·025 per cent. or less of albumin, reduced Fehling's solution, had not more than ten cells per c.mm., and was sterile on cultivation. Such a fluid was met with in meningismus, in pneumonia, and other acute fevers. When a focal infection existed in the vicinity of the meninges, as in some mastoid infections, there was some increased albumin in the fluid, or a greater number of cells, but it was still sterile. In association with mumps both albumin and cells might be very greatly increased, such increase lasting only a few days. Sometimes poliomyelitis commenced with all the symptoms of meningitis, and these cases it was often difficult to differentiate from those of tuberculous meningitis (the consideration of which was outside the present discussion, as also was meningococcal meningitis). A very large number of organisms had been charged with causing meningitis; and in the great majority of all forms of meningeal infection there was a septic focus, in ear, or bones, or viscera, or in one of the great serous cavities of the body, possibly in the sphenoidal or ethmoidal sinuses, where an unsuspected focus could lurk. The pneumococcus and the influenza bacillus on occasion invaded the meninges without preliminary warning, and it was particularly true of the second-named. He had his doubts as to it being identical with the organism described by Pfeiffer. Without lumbar puncture it was impossible to diagnose primary pneumococcus and primary influenza cases from those due to the meningococcus.

Generally, the march of the case was so rapid that little was to be hoped for from treatment. But there was always the possibility, when a source of infection had been surgically eradicated, that the meninges would be able to throw off the invaders. In all kinds of cases he believed much might be done by immuno-therapy—i.e., either by exhibiting sensitised vaccines or by transfusing blood from a person who had been immunised for the purpose. He believed some of the cases due to streptococci were helped to recovery by repeated lumbar puncture. He was convinced, from a good deal of research, that there were remarkably few mistakes made in the diagnosis of the condition; the chief difficulties were met with in early stages of the illness.

The Otological Aspect.

Sir WILLIAM MILLIGAN addressed himself to the otological aspect of the question. He said that of cases of meningitis in a general hospital, 5 to 6 per cent. were of otogenic, 1 to 2 per cent. of rhinogenic origin. Every septic invasion of the ear and its adnexa was liable to extension into the intracranial structures or into the general bloodstream. The rupture of a subdural cerebral or cerebellar abscess following a septic ear lesion might result in a profuse purulent infection of the subarachnoid or ventricular spaces. Of the complications, meningitis was the most difficult to recognise and the most important to be dealt with early. Sometimes in meningitis there was nothing to go upon for a few days beyond some rise in temperature, perhaps with a rigor; thereafter increased intracranial tension raised the alarm. In any suspicious case there should be free exposure of the middle ear cleft, tympanus, aditus, and mastoid antrum; and the removal of the area of infection would often of itself cause the removal of the threat of meningitis. In meningitis resulting from septic otitis media the blood- or lymph-stream are the usual modes of conveyance. Lumbar puncture, though the most convenient thing to do, he did not regard as necessarily the most reliable, as the "tap" was far from the disease focus, and the character of the fluid here was not necessarily the same as in the vicinity of the actual infection. The prognosis of serous meningitis was essentially good, always assuming that any primary focus of infection and any secondary intracranial lesion were eliminated. In purulent meningitis lumbar puncture should not be regarded as a means of securing drainage. In general, he considered that the higher the cell count in the cerebro-spinal fluid the greater was the likelihood of organisms being present in it. He had records of 39 cases of meningitis serosa in which recovery followed the elimination of the primary focus and tapping. The presence of viable organisms in the fluid rendered the prognosis infinitely worse than when only pus cells were found.

In actual practice three types of meningitis were met with: (1) Meningitis benigna or serosa; (2) meningitis semi-maligna; (3) meningitis maligna; and the gravity progressed in that ratio. The third group he regarded as an end-result of the second. The presence of dead organisms in the cerebro-spinal fluid he regarded as evidence that the tissue fluids of the patient were able to deal with the infection, and efficient drainage would probably effect cure. As the outlook was so vastly different, he thought every care should be taken to differentiate cases having organisms in the cerebro-spinal fluid from those in which they were absent from the fluid. The prospects of recovery depended on the patient's general power of resistance, the adequacy of the removal of the primary septic focus, and the success of drainage of the subarachnoid space and cisternæ. In bacterially-infected cases, lumbar puncture was not without danger, as blood infection might take place. Labyrinthitis, which was responsible for about 30 per cent. of cases of otitic meningitis, tended to mask the onset of the latter. There must be a more strict classification of cases of meningitis according to the pathological findings; it was a necessary step if more sufferers from this disease were to be saved.

The Neurological Point of View.

Dr. C. WORSTER-DROUGHT dealt with the neurological aspect of the subject, directing special attention to acute and subacute syphilitic meningitis. The meningo-vascular form of neuro-syphilis might develop within two or three months of the primary chancre, and it clinically closely resembled other forms of acute meningitis. In some such cases the onset was ushered in with headache and vomiting, and there were pyrexia, cervical rigidity, Kernig's sign, and occasionally strabismus. Only by examining the cerebro-spinal fluid could a diagnosis be arrived at. Usually that fluid was clear, but contained an excess of lymphocytes, and a positive Wassermann distinguished it from tuberculous meningitis. With treatment the prognosis was good. The cases of meningitis of oto-rhinological interest he had met with could be classified into four groups. In the first, the meningitis had followed intranasal operations, even such as submucous resection of the septum or removal of nasal polypi, the meningitic symptoms following 16 to 21 days after the operation. The cerebro-spinal fluid yielded usually the streptococcus, occasionally Pfeiffer's bacillus. The second group consisted of nasal or sinus disease where there had been no operation. When the sphenoidal sinus was involved, the organism was usually the pneumococcus. In the third group he placed cases of meningitis which followed wounds of the jaws. In those of the upper jaw, the meningitis arose from direct spread of the infection to the subarachnoid space, via nasal fossæ and sphenoidal sinus. In wounds of the lower jaw the meningitis was secondary to lung infection. A fourth class consisted of cases which were secondary to suppurative otitis media.

Among the symptoms which he had found of most use in diagnosis were pyrexia, headache (of increasing intensity), and vomiting. The most valuable of the physical signs, in his opinion, were rigidity of posterior cervical muscles, Kernig's sign, a fairly slow pulse associated with a high temperature, delirium or stupor with irritability, and tension or bulging of the anterior fontanelle in infants. The first of these he regarded as the earliest important sign.

Dr. Worster-Drought said that the treatment of all forms of non-tuberculous meningitis must include two principles: (1) Adequate drainage for the meningeal exudate; (2) the application of a specific immune serum in as close contact as possible with the inflamed tissues. The first he would bring about by repeated daily lumbar puncture. And puncture of the theca just below the seventh cervical vertebra he found safe, if the needle was inserted alone—i.e., without a stilette. If no fluid could be withdrawn at a lower level, puncture of the cisterna magna could be carried out; or, failing this, sphenoidal puncture, or puncture of the lateral ventricles. In otitic meningitis, trans-labyrinthine drainage was often successful.

The Pathological Diagnosis.

Dr. J. G. GREENFIELD said the laboratory diagnosis of meningitis was often very difficult, and the results of reactions performed in the laboratory must be interpreted clinically in the light of other facts. It was necessary to be very sure a cerebro-spinal fluid was normal in every way before it was safe to say meningitis in the patient was not imminent. If anything over 30 per cent. of the cells found in the fluid were polymorphonuclears, he regarded this as a danger signal. In very early meningitis the protein was often normal, yet hæmolysin and complement might be present; indeed, these latter two with a normal protein level he regarded as almost characteristic of early meningitis. The hæmolysis separately he regarded as rather treacherous, and said it was safer to test for the presence of complement only. Sometimes symptoms attributed to meningitis were due to uræmia. The cases which caused the greatest difficulty were those in which the fluid from a patient with little or no evidence of meningitis was turbid. This kind of fluid was particularly frequent in cases of empyema of the cranial air sinuses, and of abscess of brain resulting from them. He believed the pneumococcus always killed when it reached the subarachnoid space, similarly with the more virulent types of streptococcus. He believed the only clue as to whether a meningitis was generalised or not was that furnished by an estimation of the chloride percentage. Of nine cases of his own which recovered, in six the cerebro-spinal fluid was quite normal. Of seven who died from meningitis all had a fall of chlorides below 680 mg. before death. He had never known a case die from meningitis with the chlorides at their normal level. Every valuable test for the fluid should be used, and each specimen should be tested and estimated on its own merits.

Rhinogenic Meningitis.

Mr. W. M. MOLLISON dealt with the meningitis of rhinogenic origin, and said it occurred as a primary and sole complication of injury to the roof of the nose, as in fracture of the anterior fossa of the skull, involving the cribriform plate; but more often it was the sequel of some other intracranial complication of nasal disease, such as pachymeningitis, cerebral abscess, cavernous sinus thrombosis, or osteomyelitis of the frontal bone. He particularised the paths taken by (1) direct spread, (2) venous spread, (3) lymphatic spread. Katz and Blumenfeld had, he said, published figures showing the relative frequency with which infection of the various sinuses caused meningitis. In 67 cases it was the frontal sinus, in 7 the superior longitudinal sinus, in 6 the cavernous sinus, in 12 the ethmoid, in 31 the sphenoid, and in 25 there was thrombosis of the cavernous sinus. He said the number of intranasal operations must be large, but the number of cases of meningitis was small; much less than in aural cases. In some cases the onset of meningitis was delayed for months, as in a case related by Gregory, when the interval between an operation on the middle turbinals and the onset of meningitis was eight months. Almost every kind of intranasal operation had been followed by meningitis; in some cases plugging the nose for too long a time was responsible for the catastrophe. As a result of a questionnaire in America, 332 fatalities in the practice of specialists were reported, of which 125 were due to meningitis, and 120 of them followed nasal operations. Mr. Mollison related the leading features of a number of instructive cases in his own experience and among cases culled from the literature. He considered that treatment was of but little avail when once the disease had become established, especially when intranasal operation was the cause. The best defence treatment consisted in taking precautions against damage to the cribriform plate during operation, and in the observance of strict asepsis. Among the rules he suggested were the following: Never operate when the patient has an acute cold. If possible, open all pus-containing sinuses at one sitting. Do not plug for more than 12 hours. Deal gently, and avoid the olfactory sulcus.

Discussion.

Mr. W. STUART-LOW said it would be generally agreed that the great desideratum was prevention, and improvement in operative technique. Cases of meningitis were probably a reflection on the surgeon, but not entirely so. He laid great stress on the careful preparation of the patient for operation, seeing that nose, mouth, and ears were clean and free of disease. Mr. E. D. Davis had emphasised the importance of removing pus and debris from the ear by means of suction, and with this the speaker thoroughly agreed, for it gave a clean area to work in. After the operation he used aseptic horse serum; it was of a lower specific gravity than the blood and quickly started leucocytosis, which was an essential part of the healing process. He thought there was danger in lumbar puncture, particularly if frequently repeated.

Mr. SYDNEY SCOTT said that he had been much impressed by meeting with cases of meningitis in which there had been no indications of the condition until some days had elapsed; and when lumbar puncture was done, organisms were discovered in the fluid. This procedure should be carried out in all cases in which it seemed likely or possible that this might occur; also in every obscure case with a temperature in which there had been infection of ear or upper passages. He had never seen a case of streptococcal meningitis recover when repeated lumbar puncture had been neglected. He preferred to do it at 18, or 12-hourly intervals. He was able to recall quite ten cases which recovered after that had been carried out. He emphasised the importance of X ray examinations to detect ethmoidal and sphenoidal suppuration. Most of the operations which were followed by meningitis were either those on septic cavities, or in which cavities were opened with the object of reaching pus behind them. He agreed with Dr. Greenfield that when bacteria were absent from the cerebrospinal fluid, even if there was a high cell-content, the prognosis was good.

Dr. D. NABARRO also laid stress on the necessity of lumbar puncture in arriving at a diagnosis. He spoke of the value of urotropin in influenzal meningitis, and mentioned a case of the kind, under the late Dr. F. E. Batten, which recovered after that treatment. Dr. Batten administered 10 gr. every four hours during several days. He did not think any cases of pneumococcal meningitis recovered. A number of cases of meningitis started as a general septicæmia. Embolic foci occurred, and the ventricle might be the first part of the brain infected.

Dr. J. M. DICKSON (Edinburgh) spoke of the ventricular path of entry of micro-organisms in this disease. He said that in 100 post-mortem examinations on cases of meningitis, he was struck by the fact that in by far the majority the inflammatory action in the ventricles was in excess of the lesion on the surface of the brain. The distribution of the meningitis on the surface of the brain was just where the fluid in the inter-ventricular chain was near the surface. He also spoke of rare infections by paratyphoid and leptothrix organisms, as well as those of influenza. He had done post-mortem examinations on two cretins, both of whom died suddenly, and he found extensive meningitis. Dr. Gray and himself had practised immunotherapy with fairly good results in these cases, the serum from the patient himself sometimes being used.

The PRESIDENT, in concluding the debate, referred to the mutual help which these general discussions must bring, owing to the different angles and experiences from which the matter was viewed. He specially commended Dr. Greenfield's communication, and said it was probably from the clinical pathologist that most help in respect of this disease would probably come. Rigidity of neck muscles could not be regarded as an important diagnostic sign, as he had seen it of equal degree in children with acute rheumatism. There did not seem to have been much recent advance in treatment.

HARVEIAN SOCIETY OF LONDON.

A MEETING of this Society was held on Dec. 11th at the Paddington Town Hall, Dr. R. DUDFIELD, the President, in the chair.

Dr. CHARLES BUTTAR opened a discussion on the

Future Position of Consultants under the National Insurance Act.

He pointed out that the aim of the promoters of the National Health Insurance Act was to provide a medical service as closely resembling that of private practice as possible for those unable to pay adequate remuneration. But to the rich patient there still remained an advantage; he could walk down Harley-street and select a specialist at will. Therefore the addition of this privilege in some form or another was bound to be a feature of health insurance in the near future. The provision of a consultant service demanded some form of check on those serving, which meant a panel of consultants and a contract between them and the Government. Dr. Buttar defined a consultant as one who sees his patients in a consulting-room rather than a surgery, who specialises in a more or less limited branch of medicine, who receives the patients of other doctors, whose fees are greater than those of the general practitioner, whose time is to a considerable extent taken up by work performed gratuitously at a hospital, who often teaches and who frequently devotes part of his time to some kind of research. It was obvious that the insured person could not be allowed to roam at will down Harley-street, and therefore some kind of scheme must be worked out whereby the services of its inhabitants could be obtained by him. A number of problems for discussion immediately presented themselves, for instance: Would the panel consultant see his patients in his consulting-room, or in some apartment provided for him at a hospital? If he was required to call at the patient's house would he make some rule to the effect that the message must reach him before 10 A.M.? Would he receive the patient at his own request, or only in consultation with or at the request of his general practitioner? How would he arrange panel consultations so as not to clash with private appointments? And what provision would be made for the elaborate regulations and censure that might result from some slight mishap following his unpunctual attendance? What system of remuneration would he expect? It seemed obvious that no per capita fee would suit the case, the arrangement must be by attendance, or by some retaining fee, or both. Some limit must be settled for the fee for a visit, and attention must be paid to the question of how many miles he would go for that minimum fee.

Dr. Buttar supposed that the matter would be arranged somewhat on the lines of the venereal disease and tuberculosis clinics, and that it would be the younger consultants who would consent to serve. But there must be some limit to the number seen at a session; obvious difficulties were likely to arise from the overcrowding of the clinic of a popular consultant, while his colleague had scarcely any patients. The time would come when the consultant would be allotted by authority, but would the general practitioner then accept the opinion of an unselected consultant? And what would be the patient's attitude to this failure of the principle of free choice of doctor? And if he then sought other advice at a hospital, how would he be received? It seemed probable that the Government would compile a panel of specialists who would be willing to be called, and that this would consist mainly of the younger aspirants to consulting rank, or, in the provinces, of "glorified panel practitioners." The British Medical Association had laid down as the qualifications of a consultant that he should hold hospital appointments and have recent practice in the specialty in question, or that he should have followed special academic or post-graduate studies in that subject, or that it should be generally recognised by the practitioners of his area that he was proficient in that subject, the decision to rest with a local professional committee. Some such standard as this would be adopted as the panel criterion, and the consultant so chosen would consent to see a limited number of health insurance patients in a clinic session for a set fee, and to attend them at home when required for a given remuneration. The question of mileage fee would immediately arise, and presumably there would be some supervising authority in the nature of "referees." The patient attending such a clinic would be accompanied by his doctor or bear a letter from him, and the consultant would write to or see the doctor. The question of operative surgery did not seem clear; possibly the hospitals would admit such patients, but if the consultant had no beds in any hospital, what would then be done? The outlook seemed to be inevitably that of the *descensus averni* of nationalisation of the hospitals, and the nationalisation of medicine would surely follow unless the profession kept a wary eye on the situation. Unless the consultants prepared some system whereby State control would be avoided, the demand for a consulting service would increase to such an extent that a scheme would be organised and put into operation by somebody on which they were but inadequately represented.

Discussion.

Dr. W. **JAGGER** voiced the ignorance of the average consultant with regard to the working of the National Health Insurance system. The rural problem seemed to him to present very great difficulties. Who should decide which of the score or so of practitioners in a country area should be the consulting physician or surgeon of that district? He considered that younger consultants would be most unwise to undertake work of this nature; if they were to make their way they needed to spend all their time about the hospital to the staff of which they hoped in time to be appointed. He felt strongly that initiative was drowned in the State-paid official.

Dr. R. H. **DREAPER** agreed as to the difficulty which would probably be met with in provincial areas, and thought that there were no funds for consultant services in the approved societies' coffers, and that such a service was less popular with them than other proposed benefits such as the convalescent benefit. He pointed out that there was no difficulty about a consultant service in the working of the Metropolitan Asylums Board.

Dr. G. DE B. **TURTLE** drew attention to the Poor-law group of medical practitioners and institutions, and thought that their services and premises might well be used in this connexion. The voluntary hospitals had no accommodation for the reception of panel patients, but the Poor-law hospitals had such accommodation. He considered that the subject bristled with difficulties, but that the panel system was here to stay and must be accepted and made the best of. He urged more amalgamation all round, saying that the profession worked far too much in sections, and needed to get together to discuss such a difficult matter as this.

Dr. C. L. **TRAYLEN** said that he had never met a panel patient who had difficulty in obtaining a second opinion, and that the majority of them chose to see the consultant privately rather than attend a hospital; they were not so poor as the Government thought. He had been astonished at the wealthy patients who brought him panel cards, whereas a really poor patient, when told that the panel was for him as often as not replied: "Oh, is it? Well, I ain't a goin' to 'ave it!" What was needed was more organisation between the consultant and the general practitioner. He asked what arrangement would be made for the conveyance of patients who required an ambulance in country districts.

Mr. H. **TANNER** believed that if the panel had been worked out as suggested by the profession in the first instance many difficulties would never have appeared. The fact remained that a large section of the community could not pay full fees, and they must be treated somehow. The old club system, he said, was a disgrace, and there was no other system except some sort of contract, and the profession ought to set to work and draft some scheme where the element of compulsion did not enter. There were no objections to the purely professional work, only to the "red tape" regulations and interference and clerical work. The question was how such things could be got rid of when it was a question of public money. He foresaw that later on the State would take over the hospitals, and then the staff would be compelled to take panel patients.

Dr. S. **BOUSFIELD** referred to the reluctance on the part of younger consultants to take lower fees than experienced men for fear of lowering their dignity, and opined that they would not take on panel work any more than their seniors.

Mr. C. W. G. **BRYAN** said that one could not speak of a specialist in a country town in the same sense as in London. Out of some 20 practitioners there would have to be, perhaps, eight consultants! He thought that in London it would be relatively easy to get clinics going on the lines of the venereal disease clinics, but that they would not for long be staffed by the honorary staff; in a year or two the work would be done by aspirants, men holding posts as registrars and so on, and the patients would soon get to know that they were not being seen by the senior men, and would revert to the present system of attending hospitals as out-patients or seeing the consultant privately. There would be a further difficulty in the matter of beds for surgical operations. The junior men would be called out, not so much for their opinion as for their ability to send the patient into a hospital bed; the situation might then arise that the surgeon for the day would have to operate on a case which his junior had seen for a fee. The State would not tolerate the refusal of the hospital to admit such cases, and there would soon have to be State-controlled beds, thus producing an extremely difficult and disadvantageous condition of affairs leading directly on to State control of hospitals. Could not the profession intrude some voluntary scheme to avoid this?

Dr. A. H. **GOSSE** described a scheme now working smoothly at the Brompton Hospital, whereby the London County Council made a contribution to the cost of the hospital and had a right to two-thirds of the beds for its tuberculosis cases. When the scheme was initiated there was much misgiving as to the dangers of control, but for four years there had been no serious problem of interference, and no difficulty on either side. A London County Council official had the right to visit cases, but his function was really to secure continuity of treatment, and he did not interfere with the visiting staff. The London County Council made no conditions as to how the board of management used the grant given; they merely pointed out that the universal rule in the State was that if the State paid anyone they elected him. To avoid this control the hospital staff refused any honorarium from the grant.

Mr. W. G. BENDLE referred to the possible part that Poor-law institutions and officers might play, and said that at present the value of their work was considerably hampered by the operations of the existing Poor-law, which required revision, and that the institutions should be freed from the stigma of the name. He thought they might be used in some consultant service scheme.

The PRESIDENT thought that some attempt might well be made to bring the hospital services into the insurance service, as had been done at the Brompton Hospital, an area being given to each hospital for which it would act as consultant. In Paddington, St. Mary's Hospital was recognised in this way as the official consultant centre for tuberculosis, and to some extent this applied also to the maternity and child welfare service. He believed that if the hospitals made some offer such as this they might save themselves from State control. For rural areas the towns scattered about the country would be sufficient; almost any country area was now within motor distance of a town, and there was a Red Cross motor ambulance service available for transport. He was sanguine that the Poor-law service would take its place as a hospital and consultant centre, but not until the name had been changed and the problem of a medical service for the really poor transferred to the health authorities of the area.

HUNTERIAN SOCIETY.

A DINNER meeting of this Society was held at Simpson's Restaurant, Cheapside, London, on Dec. 15th, Mr. H. W. CARTER in the chair, when a discussion took place on

Headache.

Dr. C. O. HAWTHORNE opened the discussion from the medical standpoint. He said that when headache was a symptom, nothing less than a complete and comprehensive examination of the patient was adequate. It was not sufficient to find one condition which might be the cause. We must also assure ourselves that other causes were not present. Diagnosis meant a complete knowledge of the patient in both his positive and negative aspects. Headache might be due to general or local causes. Among the general causes were (*a*) chronic renal conditions, and (*b*) high blood pressure. Was the headache due to the quality of the blood, to the increased intracranial pressure, or to effusion into the substance of the membranes of the brain? The most prompt and efficacious method of treatment was blood-letting either by venesection or by leeches applied to the temple. Among the local causes of headache, tumour of the brain often had headache as its sole and unaccompanied symptom. An ophthalmoscopic examination of the patient was essential. The fundus would show with certainty the presence of intracranial tumours, but intracranial tumours might cause headache for weeks or months before a change took place in the fundus oculi, and therefore a single negative finding proved nothing. The examination must be repeated at frequent intervals, and could be carried out by the family physician. Where headache was due to intracranial tumour, optic neuritis and papillœdema might be seen, and similar symptoms were found in cases of intracranial abscess. He emphasised the fact that failure of vision occurred only after a lapse of weeks or months. Other gross intracranial conditions which caused headache were (*a*) intracranial syphilis, with its well-known nocturnal exacerbations of pain and insomnia; and (*b*) meningitis. He also stressed another method of examination—namely, lumbar puncture and examination of the cerebrospinal fluid. He mentioned three further local causes of headache which were rare, but were not to be neglected: (*a*) Suppuration in the sphenoidal sinus; (*b*) tabes dorsalis; and (*c*) cerebral attacks such as occurred sometimes in chlorotic women. Among eye conditions causing headache he mentioned (1) eyestrain, in which the headache was referred to the supraorbital region; (2) subacute iritis; (3) chronic glaucoma; and (4) migraine. He did not claim, however, that the latter was always due to ocular defects, and in its treatment diet was an important factor. There were three other vague conditions which might cause headache. These were (1) anæmia, (2) calcium defect, and (3) gastro-intestinal disturbances. For the treatment of the latter he recommended small doses of mercurial salts or pulv. rhei co. Headache might also be due to original sin, bad temper, or diplomacy.

Mr. W. TROTTER dealt with the subject from a surgical standpoint. He said that it was necessary to question closely as to what exactly the patient complained of, and certain forms of so-called headache could be dismissed on inquiry, such as (1) the neurotic headache, described by the patient as a "queer sensation" and not as pain; (2) a definite neuralgia; and (3) pain associated with disease of the accessory sinus of the nose which might be classified as not being true headache. This latter type tended to come on at a definite time of the day. True headache, he said, which was associated with a definite intracranial abnormality, was distinguished by pain behind the eyes of a throbbing character and was intensified by whatever stimulated circulation and increased intracranial tension. The surgeon had to deal with certain headaches in connexion with injury. Sometimes headache might immediately succeed an accident. In other cases it would not appear until the patient went about his work again. These headaches were due to the rigidity of the skull in preventing the circulation from re-establishing itself through the bruised part of the brain. Œdema due to trauma of the brain might persist for years, as cases had demonstrated. The practical points in diagnosing such headaches were the frequency of their occurrence and the characteristic clinical aspect of the cases. Treatment lay along the lines of prevention. The great majority of such headaches could be prevented by a rest in bed for a fortnight or three weeks after the trauma. If the headache persisted in spite of rest a decompression operation was performed.

Dr. BERNARD HART dealt with headaches as they occurred in the psychoneuroses, in hysteria, and neurasthenia. Headache in the psychoneuroses was a frequent feature. Its types and sites were legion. For example, helmet headache, clavus hystericus, bursting headache, and so forth. Three types must be distinguished: (1) where pain was present; (2) where abnormal sensations in the head were complained of (paræsthesia); and (3) where the patient described his sensations in a picturesque manner, which was often found in the psychasthenic type. In a certain number of headaches a psychological element gave rise to organic changes which produced pain. This was common in neurasthenia. Another group of headaches were unquestionably of pure psychogenetic origin, and could be produced under hypnosis. There was no such thing, he said, as an imaginary headache, for headache was a subjective symptom. In this second group the first subgroup were produced by suggestion and were seen typically in hysteria. In the second subgroup many cases could be mentioned. There was the pre-occupation type, where a headache which had once occurred became a psychological pre-occupation after objective causes had disappeared; and, again, there was the headache due to projection of incapacity, where the patient felt incapacity and projected it into his head, which thus became a subjective excuse for feelings of insufficiency. That was frequently the cause of paræsthesiæ. He considered that our knowledge that the brain was the organ of the mind was a factor in headache. He would be interested to compare headaches in a race which did not know that brain was the organ of the mind. The Freudians described elaborate chains of cause in functional cases of headache, but he thought many of these causation chains were unproven. Summarising his remarks, he said that various headaches fell into two broad groups: (1) the mediate group in which a psychic factor merely started the trouble; and (2) an immediate psychogenetic group, further subdivided into (*a*) the suggestion group, (*b*) the pre-occupation or projection of incapacity group. The distinction between the types was of great practical importance for treatment. In the first case psychotherapeutic measures were not of great value, but in the second psychotherapy was the approved treatment.

Dr. H. **FIELDEN BRIGGS** considered the subject from the dental aspect. He said that most headaches arising from teeth might be put into two headings: (1) reflex; and (2) toxic; and quoted several illustrative cases of both types. He explained at some length the value of trans-illumination by means of the Cameron lamp, and said that apical abscess might be a far greater cause of toxæmia than pyorrhœa, as no free drainage in the former was possible. He issued a warning against diagnosing disease of the teeth too readily, but stated that in his opinion many of the present-day dentifrices were doing harm by lowering the resistance of the gums. Pure salt and water and some chalk were all that were necessary for cleaning the teeth.

In the discussion which followed, Sir **JAMES DUNDAS-GRANT** referred to headaches in chlorotic women, and said that he had found chloride of ammonium to give good results in practice in this condition. He further mentioned that vertigo was a common symptom after trauma of the head, and he found that this symptom was often relieved by internal administration of perchloride of mercury. He thought calcium defect was a very important factor in causation.

Mr. C. P. **SYMONDS** mentioned two further types of headache: that due to neuritis, which was usually occipital and was accompanied by marked hyperæsthesia of the scalp; and that due to disease of the cranium, marked by persistent and aching pain.

Dr. **HALLS DALLY** cited an illustrative case where the patient had complained of persistent headache and the diagnosis was made by the blood film. The condition in this case was encephalitis lethargica.

Mr. **PHILIP FRANKLIN** referred to post-operative headache following operations on the nose, which was due to disturbance of bone. He said that a slight deviation of the septum or similar abnormality might cause great headache, although a patient with his nose full of polypi did not suffer.

Sir **BRUCE BRUCE-PORTER** referred to the dangers of diagnosing hysteria, and quoted two very interesting cases which had been so diagnosed and which proved after many years to be due to persistent œdema of the brain following trauma.

Mr. W. H. **KELSON** said that headaches in ear and nose trouble often meant retention of discharge, which was serious as meningitis might supervene.

Dr. **HOWARD HUMPHRIS** spoke of the value of electricity and electric light baths in headaches due to high blood pressure and to low blood pressure. For the former he used auto-condensation; for the latter static electricity. Artificial sunlight was of great benefit in calcium deficiency.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Dec. 3rd, Prof. G. R. **MURRAY** in the chair, when a discussion was held on

Chronic Backache in Women.

Dr. E. **BOSDIN LEECH**, introducing the subject, excused himself for speaking of backache somewhat generally, as in only a few of the cases which he was called on to treat was the cause of the backache dependent on sex. He laid stress on conditions in which the duty of holding up the body was thrown on the voluntary nerve fibres to the back muscles, instead of on the postural nerves which caused a tonic contraction of the same muscles, and he suggested that over-use of the voluntary fibres in some way caused pain. This supposed over-use of voluntary nerve fibres might be due to maintaining the body in abnormal positions for which the postural fibres were not adapted, such as stooping while gardening; it might be due to mechanical body defects as in flat-foot, or to toxic conditions as in influenza, or merely to failure of the sympathetic fibres. He suggested that this failure might be the chief factor in neurotic backaches; just as we recognised sympathetic flushings as occurring in neuroses, so we might explain backache as a failure of the sympathetic supply. Cases of backache fell into two main groups according to whether the pain was one referred to the back from some other organ, or was a direct one caused by some lesion in the back itself. Usually the diagnosis between these two types was easy, owing to concomitant symptoms, but in cases of doubt an X ray photograph and careful examination of the mobility of the spine were essential, for such cases as telescoping of two vertebræ were not uncommon, and might easily be overlooked. He showed a skiagram in which the third lumbar vertebra of a patient who came for backache was much more opaque than any of the others, giving a dense clean-cut shadow among the normal ones above and below it. In this case there were signs of involvement of sacral nerves. Unfortunately no post-mortem examination was obtained when the patient died. The speaker doubted the value of back-pains of the dorsal region in the diagnosis of gastric ulcer and duodenal ulcer from each other and from other conditions. He had attempted to diagnose between such conditions by the position and nature of the pains in the back, but without definite success.

Dr. **DANIEL DOUGAL** then read a paper on the subject, which was published in full in THE LANCET of Dec. 13th (p. 1220).

The Sacro-Iliac Problem.

Mr. **HARRY PLATT** said that he would, appropriately, confine his share in the discussion to a survey of certain affections in which the symptomatology as a whole pointed to the existence of a lesion of the lower part of the spinal column or of the pelvic joints. The conditions which fell into this category were numerous, and they represented a variety of pathological changes. For clinical purposes they might be divided into three groups—a classification which had a purely utilitarian basis. 1. Traumatic lesions of the lumbar spine: (*a*) Strains—muscular or ligamentous; (*b*) fractures: crush fractures of the vertebral bodies, fractures of the transverse processes. 2. Chronic bone and joint lesions of the lumbar spine: (*a*) Tuberculosis (Pott's disease); syphilis; new growths. (*b*) Arthritis (spondylitis) of various types; osteo-arthritis; arthritis of infective origin—e.g., typhoid, gonorrhœa, &c.; spondylitis deformans. 3. Lesions of the sacro-iliac and lumbo-sacral articulations: (*a*) arthritis of various types—infective arthritis, tuberculous arthritis, &c.; (*b*) traumatic lesions—strains, acute and chronic; displacements (subluxations, dislocations); (*c*) "postural (static) strains" (defective balance). Most of the conditions included in groups 1 and 2 gave rise to a well-known clinical picture, which combined with the evidence obtained from a radiographic examination of the spine and pelvis led to the establishment of an accurate diagnosis without much difficulty. In these groups also the incidence of the various lesions in the two sexes was largely a matter of chance. But in the last group (group 3), he said, we were dealing with certain affections which were less well understood, although around the subject of derangements of the sacro-iliac joint there had accumulated a most extensive literature. It was of this group alone that he proposed to speak.

Mr. Platt then set forth in detail the anatomical structure of the sacro-iliac region, and proceeded to discuss the clinical aspects of the sacro-iliac problem. Our present-day knowledge, he said, we owed chiefly to American observers, and more particularly to the surgeons of the Boston School of Orthopædics, two of whom, in 1905 drew attention to a group of clinical signs which constituted a definite sacro-iliac syndrome, but indicative of non-destructive lesion of this joint. The more important features of this symptom-complex were: Backache, sciatic pain, lameness, tenderness in the region of the posterior inferior iliac spine and painful muscle spasm evolved by any movement or manipulation which tended to produce rocking of the innominate bone on the sacrum. Mr. Platt then gave an account of the work done on this problem in America, comparing it with that carried out in Great Britain, and discussed the various hypotheses which had been put forward in explaining the ætiology of the condition. His conclusions were as follows:—1. The sacro-iliac syndrome may be regarded as a definite clinical entity. Backache is a prominent feature in this symptom-complex. 2. The conditions which give rise to the sacro-iliac syndrome may be divided into two groups: (*a*) Traumatic strains of the sacro-iliac or lumbo-sacral articulations, and (*b*) postural or static strains unconnected with injury. 3. In the first group the term strain includes a variety of joint lesions such as are commonly seen in other joints when subjected to trauma. The symptoms evoked by injury may be perpetuated as a type of chronic sprain by the influence of postural factors. 4. The term postural or static sprain adequately describes the large number of patients who present the chronic sacro-iliac syndrome not induced by injury. In these it is unnecessary to postulate the existence of true sacro-iliac joint lesions. The backache is an expression of an undue stress thrown on the posterior musculature of the lower spine, buttocks, and thighs. In this group mild cases of spondylolisthesis are not infrequently encountered.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A meeting of this Society was held on Dec. 3rd, Sir David Wallace, the President, being in the chair. Prof. D. P. D. Wilkie read a paper on the

Surgery of the Biliary Passages.

He commenced by saying that considerable difficulty still existed as to the place of surgery in the treatment of biliary diseases; some declared that in the great majority of cases operation was the only rational treatment, while others were of the opinion that the risk was too great, and recommended expectant treatment. He stated there was no doubt as to the great frequency of the condition, and that the flatulent dyspepsia of the stout multiparous woman spelt cholecystitis and usually gall-stones. The paper was not to deal with symptomatology and diagnosis, but with the indications for operation, its risks and its benefits. Cholecystitis was by no means a benign condition, and he had been more and more impressed by the price that patients had to pay for neglected biliary diseases; the daily life was often crippled, and in many cases the condition proceeded to pancreatitis and malignant disease. The flatulent dyspeptic, breathless and languid after food, became unfit for physical exertion and increased in weight with further biliary stasis; in this way a vicious circle developed. Further, the increase of fat with toxic absorption caused breathlessness and palpitation, the "cholecystic heart," which was often followed by bronchial trouble, rendering the patient an unsuitable subject for operation. If the condition were left too long, it was quite likely that a lymphatic spread might occur, with the danger of acute or subacute pancreatitis as a complication. Stones in the ducts often caused patients to become chronic invalids, with recurrent attacks of cholangitis and fever. Jaundice was often not a marked feature, and the condition was often masked by pulmonary changes, and later secondary hepatic, pancreatic, and cardiac lesions increased the risk of or even prohibited operation. As these were the risks of expectant treatment, operation must be carefully considered. Gall-stones were never harmless.

Cases might be considered as to whether they were suitable or unsuitable for operation. Those demanding surgical interference included all cases of acute cholecystitis with obstruction of the duct by a calculus giving a tense, inflamed, and distended gall-bladder. In the young, one might delay operation for a short time in the hope of the attack subsiding, but in the elderly delay was dangerous. Other types of cases demanding operation were those of persistent flatulant dyspepsia punctuated by occasional attacks of acute cholecystitis, and those with recurrent cholangitis, rigors, and jaundice indicating a stone in the bile-duct. Operative measures should not be resorted to where other organic diseases were present, and especially in association with the following conditions: (*a*) myocardiac degeneration; (*b*) cirrhosis of the liver; (*c*) malignant disease of the pancreas; and (*d*) intense jaundice. In elderly bronchitic persons with acute cholecystitis, operation might be considered under "twilight sleep" and local anæsthesia. Cases in which operation was a subject for debate included those suffering from simple aseptic stone, with occasional sharp attacks of biliary colic. Operation is, on the whole, advisable in these cases, as trouble will probably come later. Attacks may often be warded off by removal of septic foci such as bad teeth.

Prof. Wilkie had based his paper on 197 consecutive cases operated on during the last five years. These were divided into five groups: (1) 29 urgent operations for acute cholecystitis; (2) 103 interval operations on the gall-bladder; (3) 32 common-duct cases; (4) 18 malignant cases; and (5) 15 cases with acute or subacute pancreatitis. 35 cases were definitely jaundiced. Of the 29 urgent cases, 8 were in males, 21 in females. In practically every case the cholecystitis was of the obstructive variety, with the gall-bladder inflamed and containing mucopus. In 27 cases gall-stones were present; in all cases the walls of the gall-bladder were diseased, and the organ would have been better removed, but in many cases peritonitis indicated evacuation and drainage as being more prudent. Cholecystectomy was performed in 13 cases. Of the 103 interval operations, 27 were in males, 76 in females. All cases showed thickening of the gall-bladder, gall-stones were present in 79, and sclerosis of the pancreas in 39. Where the gall-bladder constituted a functionless organ and a focus of infection it was removed; this happened in 47 cases. Where there was a good chance of recovery of function cholecystostomy was performed (56 cases). Unless the cystic duct could be seen and ligated under the eye, the gall-bladder was left. There were four deaths in this series. Of the 32 common bile-duct cases, 5 were males and 27 females. In 28 cases stones were found in the ducts varying in number. Eight cases had been operated on previously, but probably with inadequate exploration, and 17 cases were jaundiced at the time of operation. The stones when present were removed, the lumen of the duct explored, and drainage to the surface established, and if necessary removal (13 cases) or drainage (14 cases) of the gall-bladder was performed. In three cases cholecystectomy had previously been performed. There were four deaths. Of 18 malignant cases ten had carcinoma of the head of the pancreas, and the gall-bladder was anastomosed to the stomach or intestine; four died soon after operation, the others were relieved, two living as long as 12 months. In two cases of cancer of the common bile-duct free drainage was established. In six cases of carcinoma of the gall-bladder there was a history of long-standing gall-stones. In 15 cases of acute or subacute pancreatitis the patients had all suffered from long-standing cholecystitis; 13 were over 60 years of age. All were operated on for urgent symptoms. In five cases of hæmorrhagic pancreatitis there were four deaths, in ten subacute cases four died soon after operation, and in six the results were unsatisfactory.

Regarding the age of the patients, in cases of benign disease out of 32 patients over 60 years of age there was only one death. Jaundice was present at operation in 35 cases—in 17 due to stone in the duct, in 18 due to malignant disease. In all these glucose was given before and after operation. Hæmorrhage was met by intravenous injection of 10 per cent. calcium chloride in five cases, and intramuscular injection of 30 per cent. sodium citrate in ten cases. One of the former and two of the latter died. The sodium citrate seemed to have marked effect in lessening hæmorrhage. Concluding, Prof. Wilkie said that gall-stones and infection of the gall-bladder must be regarded seriously in view of their complications, and pointed out that the risk of operation in uncomplicated cases was slight.

In the discussion which followed Dr. W. T. Ritchie said he had observed some of the cases which had been described, and greatly favoured the sending of such cases early to the surgeon. The doubtful case for operation presented considerable difficulty, and many of the stout dyspeptic females could be kept in comparative comfort by medical treatment.—Sir Harold Stiles emphasised the importance of immediate operation in acute cases with regard to the stout person with intermittent attacks of biliary colic, preparation for operation by reduction of weight by 1 or 2 stones should be carried out, as this simplified the operation and reduced the risk of hernia. The ducts and pancreas should be freely exposed and examined in all cases. Discretion had to be exercised in many cases as to whether the gall-bladder should be removed or not. He agreed that sodium citrate was useful, and preferred it to calcium chloride.—Mr. J. W. Struthers raised the question whether gall-stones might cause symptoms simulating gastric ulcer. He believed in removing the gall-bladder to prevent possible recurrence of stones.—Mr. J. W. Dowden said he had recently met with five cases of gall-stones recurring after a previous operation. In one case carcinoma had developed.—Mr. Henry Wade said that in his pathological experience he had met with gall-stones in 10 per cent. of post mortems, indicating the frequency of the condition.

A communication was read by Dr. L. S. P. Davidson on

Anti-pneumococcal Immunity.

He stated that although for more than 40 years it had been known that a protective anti-pneumococcal serum could be prepared, this could not be used clinically till the types of pneumococci I., II., III., and IV. were discovered. It was then found that protective sera could be prepared only against Type I. In the Rockefeller Institute Type I. was found in 33 per cent. of cases, and had a mortality of 25 per cent. In 107 cases treated with immune serum the mortality was reduced to 7·5 per cent. This serum treatment had disadvantages to the general practitioner on account of its cost, the technical difficulties of its injection, the production of serum sickness, and through the necessity of coöperation with a bacteriological laboratory. Type identification of the pneumococcus by injection into a mouse and subsequent agglutinating reactions, could be carried out in 12 to 24 hours.

The proportion of cases of pneumonia in Edinburgh due to Type I. was found to differ throughout the year. In October and November 17 cases of pneumococcal infections all proved to be of Type I., while in 15 cases of acute lobar pneumonia in February and April 40 per cent. were of Type I. In both these periods, 17 cases of pneumococcal empyema all proved to be of Type I. These figures pointed to the possibility of considering serum therapy. Regarding serum therapy, the importance of preliminary laboratory investigation was emphasised. In the past, heat-killed cultures prepared in the form of a saline emulsion of micro-organisms were relied on, but recently detoxicated and defatted vaccines had been introduced.

He himself had previously carried out experiments with *B. suipestifer* as a test. This showed fixation of 5 units of complement with ordinary vaccines, and ½ unit with detoxicated vaccine, while defatted vaccine gave no result. The question was, What relation did antibodies bear to immunity? The real test of a vaccine was the production of immunity to a lethal dose of organisms. Tests on these lines were undertaken. Vaccines were made from a Type I. pneumococcus, (1) heat-killed vaccine, (2) detoxicated vaccine, (3) defatted vaccine. These were injected into rabbits, each receiving six doses with a five days' interval. After this, the serum of the rabbits was injected into mice together with a broth culture of pneumococcus, in addition Rockefeller immune serum, normal serum, and culture alone without serum were employed.

The general conclusion was that, judged by the production of antibodies and protection to lethal doses of the organism, detoxicated and defatted vaccines had no immunological value comparable to that of ordinary heat-killed vaccines.

In the discussion which followed, Prof. T. J. Mackie said that this work was only a part of Dr. Davidson's investigations. It was decisive and did not admit of criticism. The results were based on immunisation to actual lethal doses and not based on antibody formation.—Dr. H. Whitridge Davies said he had the opportunity of seeing cases of pneumonia in New York and was struck with the severity of the disease there as compared with that prevalent in this country.—Dr. Fergus Hewat agreed regarding the mortality from pneumonia in this country. recently 12 consecutive cases of acute pneumonia in one ward had all recovered. He questioned whether there was any need of serum. Since the war, he said, few typical cases of acute lobar pneumonia were to be seen.—Dr. W. T. Ritchie asked whether there was no clinical means of identifying the Type I. pneumococcus case. He also asked whether it was of advantage to perform lung puncture to procure the organism before sputum was available.

Dr. Davidson, in reply, agreed that the type of pneumonia in this country was not so severe as that in America. Serum treatment might still be useful in some cases and serum prepared from "ordinary" vaccines should be employed. In answer to questions he said there was no clinical means of identifying the Type I. pneumonia and that the laboratory investigation was the only means by which it could be diagnosed. Lung puncture he considered unnecessary as sufficient sputum could always be obtained even in the earliest cases, only a minute quantity being sufficient.

Exhibition of Clinical Cases.

Prof. D. Murray Lyon showed a case of *Cretinism* in a male aged 19. Treatment had been carried out for a week with some improvement. The patient was the size of a child of 5 and had the mentality of a child under 2. The upper part of the head was large, the skull base small, the whole body was stunted, the limbs stumpy, the hands and feet broad.

Dr. C. G. Lambie showed a case of *Syringobulbia* in a female aged 49. The patient, 16 years ago, had suffered from paralysis of the vocal cords; this had improved but had returned recently. At the present time there was paresis of the palate, tongue, and limbs, dissociation of sensation down to the second rib, nystagmus and a right extensor plantar reflex.

Reviews and Notices of Books.

PHYSICAL CHEMISTRY FOR STUDENTS OF MEDICINE.

By ALEXANDER FINDLAY, M.A., D.Sc., F.I.C., Professor of Chemistry, University of Aberdeen. London: Longmans, Green and Co. 1924. Pp. 227. 8*s*. 6*d*.

EACH of the main branches of scientific study to which the attention of the modern medical student must be applied, for example, physiology, pathology, and biochemistry, have attached to them a series of subsidiary subjects. Amongst the most important of these is physical chemistry, which hitherto has been taught in our medical schools as a kind of side line. There are signs that it will shortly have to occupy a much more important place in the curriculum of the doctor of the future. At present there is still a tendency to limit its study to that of a few stock questions dealt with at the end of the course, such as hydrogen-ion concentration, enzyme action, and colloids. The first is too often dismissed by harassed teachers with a few words on dissociation, the writing up on the board of the magic slogan $OH \times H = K$ (the meaning of which is not easy to expound), and a fleeting reference to pH. The second subject is disposed of by a reference to catalysts, whilst a summary of Graham's earlier experiments constitutes the stock lecture on modern theories of colloidal behaviour. This system, partly due to the small amount of time at the disposal of the lecturer, is to some extent perpetuated by examiners, who seem to expect replies based only upon such meagre grounding. The student at a hospital medical school is not, as a rule, conscious of the increasing importance of physical chemistry in medicine, and if he is, has hitherto been unable to find a book suited to his needs and early training.

Prof. Findlay has rendered a very great service to medical education in writing the present book. It is the first of its kind, and could hardly be improved upon. The author has appreciated the real difficulties of medical students, and has met them admirably. The volume is a complete text-book of physical chemistry, and, although quite advanced, is understandable by those without mathematical training. Chapter VIII., on the hydrion, serves as a typical example of the way in which the work is planned. Dissociation in solutions having been dealt with elsewhere, the author confines his remarks in this chapter to the determination of hydrogen-ion concentration. A brief description of solution pressure and electrode potential is given, together with a demonstration of the mathematical relations between E.M.F. and H-ion concentration. This leads up to the theory and use of the hydrogen electrode worked in conjunction with a potentiometer. A detailed account follows of the methods of calculating pH from the absolute concentration, and for converting pH back into C_H. In this respect the book appears to be unique in the English language (among works intended for medical libraries), for we have not found elsewhere an intelligible account of this simple expression. The indicator methods are next described, and the chapter concludes with the applications of what has gone before to the neutrality regulation of blood. Chapter X., again, concerns colloids. After the usual introductory matter, the author points out that there are many gradations between true and colloidal solutions depending upon the size of the particle, and that it is difficult to draw a sharp dividing line. Bechold's ultra-filtration methods, Brownian movement, osmotic pressure, and electric charges are discussed in great detail. The final chapter on adsorption is especially clear. There are a few references to papers of interest, and the diagrams are well executed.

On behalf of medical students and their teachers we are grateful to Prof. Findlay. Eminent "pure" chemists are often haughty as regards medical chemistry and look on it as something bastard and almost immoral.

THE INTERNAL SECRETION OF THE SEX GLANDS.

By ALEXANDER LIPSCHUTZ, Professor of Physiology in Dorpat University (Esthonia). Cambridge: W. Heffer and Sons, Ltd. 1924. Pp. 513. 21*s*.

THIS is perhaps the most comprehensive work on the subject that has yet appeared. As the author states in his preface, his original intention had been to bring out a revised translation of his book "Die Pubertätsdrüse und ihre Wirkungen" (Berne, 1919), but he found that so much valuable work had been done since the publication of his former treatise that his task really amounted to rewriting the whole subject. One has only to look at the bibliography and the references to foreign literature contained in his present work to realise how wide has been the author's review of the subject. The manuscript, originally written in English, has been carefully edited by Prof. F. H. A. Marshall, F.R.S. In its pages will be found a complete account of the endocrine functions of the gonads so far as these are known in all multicellular animals. Although the book is written from the point of view of the zoologist and the physiologist rather than that of the medical man there is much that will interest the medical profession. For example, it contains sections devoted to such subjects as eunuchoidism and sexual precocity, homosexuality, the influence of X rays on the testicle, the result of testicular grafting and of ligature of the vas, and the effect of the internal secretion of the sex glands on the pyschosexual behaviour of man. In the earlier part of the work, dealing with the function of the interstitial cells, the much debated point as to whether they are or are not the sole source of the internal secretion of the testes is considered at length. This subject has given rise to heated controversy, and it is satisfactory to read an account in which the subject is handled with such fairness. The author is, of course, in favour of the interstitial cells furnishing the internal secretion, although he agrees that more detailed histological investigations will be necessary in order to define in a stricter sense what kind of cells precisely are understood under the name of interstitial. He believes, however, that it is unjustifiable and arbitrary to declare that a tissue cannot be considered to have an endocrine function because it is "connective tissue." With this readers will agree, but at the same time it is impossible for anyone to go through the chapters dealing with this subject without being impressed by the complexity of the question and the large gaps in our knowledge that still exist.

In this book the medical man, the psychologist, and the student of eugenics will all find material of great importance to their studies. Although strictly scientific in its outlook it is not too technical for those who possess only a slight knowledge of psychology, and it should establish itself as a standard work on the subject.

CARDIOLOGY.

Les troubles fonctionnels du cœur. By R. LUTEMBACHER. Paris: Masson et Cie. 1924. Pp. 520. Fr.45.

IN this book, as its title indicates, the author has chosen as his text the functional derangement of the heart and its relation to disease of the heart muscle and valves. The arrhythmias are considered under two main headings—disturbances of excitability and disturbances of conductivity. Heart failure or asystole is treated as a disorder of contractility of the heart muscle, and the pain syndrome, of which angina pectoris is a type, is explained as an altered sensitivity of the heart peculiar to this organ. Many pages are given to the analysis and identification of functional disorders of the heart as they are recognised clinically. For this purpose the text is well illustrated by diagrams, polygraphic tracings, and electrocardiographic records. These are carefully selected, clearly printed for the most part, and conveniently placed. The author, in his use of the term hyperexcitability as a quality of heart muscle associated with certain types of irregular heart action, accepts without criticism a theory advanced by Prof. K. F. Wenckebach many years ago. It is true that the cardiac irregularities occurring in man are similar to those produced experimentally in animals. In the human subjects the irregularity is provoked by some natural process; in the animal an identical event may occur after an electrical or mechanical stimulus. It is possible to produce extra-systoles in a heart that has been poisoned by potassium chloride, when it is known that the excitability of the heart muscle has been lowered from the effects of the poison. We can also increase experimentally the excitability of the heart muscle without producing extra-systoles. Recent investigations have thrown very little light upon the association between structural disease and irregular heart action, apart from auricular fibrillation.

The book will be criticised from this point of view by those who know the work of Sir Thomas Lewis. The diagram given to illustrate circus movement in auricular fibrillation is confusing to the reader; it is a reminder of other theories advanced to explain the mechanism of this abnormal rhythm. In the chapter on heart failure, the author makes the classification seen in most text-books based on the back-pressure hypothesis. He attributes such symptoms as anginal pain and the breathlessness of cardiac asthma to left ventricular failure, and explains the signs which are associated with general venous engorgement to failure of the right heart to maintain the circulation. There was a time, not long ago, when the armchair philosopher could sit back and write an essay on heart failure, and no one could dispute the theories advanced to explain the functional derangement of the circulation. We have to-day in our possession many physiological facts which do not fit in with the theories of yesterday. The time has come when much of the cargo which text-books on diseases of the cardio-vascular system are carrying can be thrown overboard. If this is done, there will be less confusion in the minds of those who are struggling to understand the essentials of heart failure.

The chapter on treatment includes a good account of the pharmacological action of those drugs commonly employed in the treatment of diseases of the heart.

Ophthalmology.

Errors of Accommodation and Refraction of the Eye and Their Treatment. A Handbook for Students. Fifth edition. By Ernest Clarke, M.D., F.R.C.S., Consulting Surgeon to the Central London Ophthalmic Hospital, &c. London: Baillière, Tindall and Cox. 1924. Pp. 251. 8*s.* 6*d.*

This volume has undergone a thorough revision in its fifth edition and is well up to date; for example, the revised standards of vision tests for the public services received so recently as March, 1924, are included. It is well known that Mr. Clarke lays great stress on the accurate correction of the smallest errors of refraction in cases of astigmatism where any symptoms are present, working to eighths of a diopter in certain cases. For this purpose the use of a cycloplegic is essential up to the age of 45, but we note with pleasure that, whereas in previous editions atropine was recommended up to the age of 35, adult patients over 20 are now let off with homatropine, a considerable concession to their convenience. In the chapter on eyestrain the author returns to the subject of minute errors of refraction. "There is little doubt," he says, "that cataract may be started by the irregular contraction of the ciliary muscle in correcting low errors of astigmatism, and that the correction of these errors, with the consequent disappearance of the eyestrain, will stay the progress of this disease." If this were an established fact it would be one of great importance; the arguments in its favour, therefore, deserve a fuller exposition than is afforded by the somewhat cryptic statement quoted.

We welcome a new edition of a very useful work.

A Manual of Diseases of the Eye. Fifth edition. By Charles H. May, M.D. New York, Chief of the Eye Clinic, Columbia University, &c.; and Claud Worth, F.R.C.S. Eng., Consulting Surgeon to the Royal London Ophthalmic Hospital. London: Baillière, Tindall and Cox. 1924. With 337 figures and 22 coloured plates. Pp. 460. 15*s.*

This is a deservedly popular text-book, partly because of the excellent coloured plates which illustrate all the common anomalies of the eye. In the present edition many sections have been entirely rewritten, including the useful chapter by Mr. S. H. Browning on Vaccines in Ophthalmology. The chapters on squint and heterophoria are brief extracts from Claud Worth's larger book on Squint and incorporate his practical conclusions. That on Colour Vision was written by the late C. Devereux Marshall, who lost his life in the war, and it remains as he wrote it. It is an admirably clear and concise exposition of the theory of Edridge-Green; students should note, however, that for purposes of examination they will be expected to know something about the older theories which are here too briefly dismissed. The final chapter on visual requirements for public services has not been efficiently revised. It is not mentioned that the Edridge-Green lantern is now the official test for colour-blindness in the British Navy, and the Board of Trade tests for the British Mercantile Marine are quoted from old regulations, in which the Holmgren wools are still employed. In the methods used at present Holmgren's wools play no part; instead a lantern is employed (not available for general use) and there is provision for dark adaptation.

Die Tuberkulose des Auges. A Text-book for Practitioners and Specialists. By Dr. Arnold Löwenstein, Professor in the German University of Prague. Berlin and Vienna: Urban and Schwarzenberg. 1924. With 26 figures. Pp. 84. Gold marks 2.40.

Our knowledge of tuberculous affections of the eye is comparatively recent, and this book gives a good summary of the subject up to date. The section on tuberculosis of the iris, ciliary body, choroid, and retina, with the figures illustrating these conditions, mostly reproduced from other sources, are of great interest. The illustrations of tuberculous infiltration of the retinal veins, cases to which T. Axenfeld and W. Stock drew attention in 1909–11, deserve special notice. Of the tuberculous nature of phlyctenular disease there is not much new to be said, but the author gives evidence of its relation to tubercle, at any rate in the more severe cases. The greater part of the book is devoted to the discussion of therapeutic measures, and in this connexion great stress is laid on treatment by light. For conjunctival and lid affections the Finsen light is recommended. Much depends on the technique, and the good results that are quoted mostly come from the Finsen Institute at Copenhagen. For deeper affections an apparatus of Koeppe is described, by means of which appropriate portions of the spectrum (from 350 to 500 *μμ*) can be focused at different depths and its intensity regulated. Koeppe has reported more than 200 cases of tuberculous irido-cyclitis treated by this method, of which the great majority were cured in from two to six weeks. Some authorities rely more on general treatment by sun or artificial light than on local treatment, and the rapid healing of a tuberculous tear-sac under the general treatment is noted. A great part of the book is occupied by a discussion of specific treatment by tuberculin. A. v. Hippel claims a large proportion of cures from it. C. v. Hess, on the other hand, is sceptical of its effect. E. Schall and P. Stöwer believe that a considerable proportion of cases of detached retina have a tuberculous origin, and claim good results from tuberculin treatment. There is a consensus of opinion in favour of its use in cases of tuberculous irido-cyclitis. The question of dosage is discussed, and a synopsis of the literature of the subject is appended.

As a summary of the recent work of German-speaking authorities on the subject this little book is recommended.

THE PURPOSE OF EDUCATION.

Third edition. By ST. GEORGE LANE FOX PITT. Cambridge University Press. 1924. Pp. 92. 4s.

EDUCATION seemed simpler and plainer when we did not discuss it so much; when we took it for granted that it was a good thing that we had better get as much of as we could; when we drank our glass of milk instead of analysing it. The pendulum has swung a long way over to the other side now, and what with the "rights of children," the "necessity of self-expression," the "futility of mere book-knowledge" and such like jargon, the youth of the present day find excuse for inaction in the absorbing occupation of wondering what they are doing and why they are doing it. Appeals to opportunism and detailed argumentation are of little use in meeting such an outlook; faults of the spirit are not corrected by tales of the workhouse any more than by lurid pictures of a fiery hell, and the modern attempts at a Paley's evidences of education are no more convincing than their prototype. And it is the spirit of convinced belief in an ideal which teachers need to have, and to have in such abundance that it can overflow into their pupils. Mr. Pitt goes, we think, straight at the essential point when he simply and plainly argues that the purpose of education is to enable us to suppress our egoism and realise our necessary interdependence. Individual competition and its twin, the love of riches, are the more immediate blights under which the world suffers, and he urges uncompromisingly that we shall be always going wrong until "love one another" is the accepted and acknowledged aim of our education. It is well that these great propositions should be sometimes stated in explicit terms; no one doubts their essential truth, but they are apt to be mislaid and forgotten in the turmoil of eurhythmics and curricula. And the author leaves the details of their realisation to his readers, knowing that there are as many ways of educating well as there are of living well and that if the spirit is right the methods cannot go far wrong. The book is wonderfully cheap.

CHARLES BOUCHARD.

Un médecin philosophe: son œuvre et son temps. By PAUL LE GENDRE. Paris: Masson et Cie. 1924. Pp. 526. Fr.30.

THE portrait of Bouchard which forms the frontispiece to this account of him by an old friend will make a good many people say "He must have been an interesting man; I should like to have known him." And in Dr. Le Gendre's narrative they will find an attractive mixture of scholarship and affection which is an adequate commentary on the picture. Bouchard was born in 1837 and lived till 1915 the full and active life of a student who slowly passed up the narrow way prescribed in French education to be a great doctor and teacher. The 60 years of his manhood saw large changes in medicine and its allied sciences, and Dr. Le Gendre has made his subject the centre of what is really a history of French medicine during that period. He adds throughout the book little sketches of the men in contact with Bouchard as teachers, colleagues, or pupils; we learn, for example, that it was an attack of diphtheria which first took Sir Armand Ruffer, born at Lyons like Bouchard, and his brother-in-law, to Egypt to convalesce and so initiated his distinguished career as professor of pathology at the medical school and president of the sanitary board. In this and other ways we get an interesting view of Bouchard's surroundings as well as of himself, and the biography is a fine addition to the monument he left in the *Traité de pathologie générale* and the *Journal de physiologie et de pathologie générale*.

MATERIA MEDICA FOR NURSES.

A Text-book of Materia Medica for Nurses. Second edition. By A. L. MUIRHEAD, M.D., late Professor of Pharmacology, Creighton Medical College, Omaha, Nebraska; and EDITH P. BRODIE, A.B., R.N., Instructor in Materia Medica, St. Louis, Missouri. London: Henry Kimpton. 1924. Pp. 190. 10s. 6d.

THE term materia medica, as used in this book, comprises not only that subject in the narrower sense, but all that a nurse should know of drugs, pharmacology, therapeutics, and toxicology. In some few points this work does not correspond exactly to what is usually taught to nurses in England. We have noted that, in recent American nursing books on drugs, the calculation of doses and strengths, which in England is left to the dispenser, is explained as if the nurse were likely to compound the medicine. This Materia Medica devotes a section, though certainly not a large one, to such calculations. Another feature, not likely to be found in a nurses' text-book in England, is the presence of a number of respiratory and circulatory tracings, used to illustrate the action of drugs. These do not seem to add to the value of the book, since even for the initiated they are not all easy to follow. If they are retained in future editions the explanation of each figure should be much fuller than it is at present. On the whole the material in this book and the style of expression is excellent, while the printing, binding, and finish do credit to the publisher.

BIRKBECK COLLEGE.

1. *A Short History of Birkbeck College.* By C. DELISLE BURNS. London: University of London Press. 1924. Pp. 170. 5s.
2. *Birkbeck College Centenary Lectures, 1823–1923.* Same publishers. 1924. Pp. 178. 5s.

THESE two books form a worthy memorial of the centenary of Birkbeck College, an institution which after a stormy beginning and many difficulties has now settled down into the position of being a school of the University of London.

Birkbeck College began its career as a mechanics' institute, and was founded by Dr. George Birkbeck, after the model of a similar institution in Glasgow, to be a centre of popular education, not so much general, but one seeking to provide the working men of London with instruction in their own trades and to a certain extent in economics. Dr. Birkbeck was by no means a revolutionary, but much opposition was shown to the scheme in the press of the day. Absurd as were some of the objections the critics had some grounds for suspicion, seeing that one of the committee appointed to draw up a constitution for the proposed institute was the notable Francis Place, a root and branch radical, and incidentally one of the earliest pioneers in what is now known as birth control. Again, one of its ardent supporters was Brougham, an able man though perhaps somewhat unscrupulous. The committee was aware of the value of the printed word and founded a periodical called the *London Mechanics' Register*. The steps by which the London Mechanics' Institute grew into the Birkbeck Literary and Scientific Institution, and finally into Birkbeck College, can be traced in Mr. Burns's clearly written pages. Suffice it to say that the College has done, and continues to do, admirable work, and is a shining example of what a band of earnest students can accomplish, for unlike the older Universities which are governed by a guild of masters, Birkbeck College has always been in part at least governed by the students themselves.

The volume of centenary lectures, which has a preface by the late Prime Minister, Mr. Ramsay MacDonald, contains seven lectures dealing respectively with progress in philosophy, evolutionary economics, education in England, physical science, biology, and historical studies, and the work closes with the centenary oration delivered by the present Prime Minister, Mr. Stanley Baldwin. The three most interesting lectures from our point of view are those upon education, physical science, and biology, the authors being respectively Sir Michael Sadler, Sir Joseph Thomson, and Sir William Bateson. Mr. Baldwin's oration, which is not, as he himself says, an oration at all, is all the same a delightful composition, or, as he calls it, "a talk." It is simple and straightforward, full of shrewd remarks and common sense. His views upon the true republicanism of literature are illustrated by the remark that the man whose face lights up at any of four quotations which he gives is his brother. Here are the four:—

1. What makes him go sideways?
2. Golly, what a paper!
3. The light that never was on sea or land.
4. Where I dines I sleeps.

Men of middle or advanced middle age will be able to claim brotherhood with Mr. Baldwin; we are not so sure about a younger generation.

QUICK REFERENCE BOOK.

Lippincott's Quick Reference Book for Medicine and Surgery. Fourth edition, revised. By GEORGE E. REHBERGER, A.B., M.D. London: J. B. Lippincott Company. 1924. 65*s.*

THIS big book of well over 1000 pages, which, strange to say, are not numbered, has several striking features. The most astonishing fact about it is that it is the work of one man, a country practitioner of British Columbia, who in the first place collected the information for his own use, and later, when he determined to publish his notes, came east to systematise, with the aid of the libraries, what he had collected. It is divided into 11 sections; the first and largest deals with medicine and surgery, the next eight sections treat of various specialties, including orthopædics, and the last two treat of drugs. Each section is arranged alphabetically; cross references are very numerous and, on the whole, subjects are easily found. Recent work in research and in practice finds its place and the information given seems to be correct. A literary flavour is given to the book by the fact that the derivations of most of the terms used in medicine are set out; in some cases the desire to show the origin of words is carried unnecessarily far, as where the derivations of acute, chronic, dislocation, divergent, and presentation are inserted. The chief weakness of the book is exemplified in its pictures. Though these are well printed, too much is attempted in too small a space, so that they lack detail and do not convey to the mind the disease they are intended to represent. So in a milder degree is it with the text; there is not room for a full account of each subject and some are unduly compressed. Many country practitioners may prefer their old text-books, helped out by one of the numerous year books; others, however, may be well suited by the general review of medicine in all its branches given in this compendious volume.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS IN 1924.

WE are requested by the Registrar of the General Medical Council to publish the following list of medical practitioners who have not replied to his inquiries as to the accuracy of their addresses. Anyone who finds his or her name included in this list should communicate immediately with the Registrar of the General Medical Council, 44, Hallam-street, Portland-place, London, W. 1. Since this list was prepared a large number of further inquiries have been sent out, but it would be advisable that in all cases in which a practitioner's name appears in the list a communication should be addressed to the Registrar.

Adams, Charles G., M.B., 1915 (Col.).
Adcock, George R., M.R.C.S., 1893 (E).

Baldwin, Thomas A., M.B., 1881 (I).
Bell, Arthur F., M.B., 1912 (Col.).
Bennett, Thomas A., L.R.C.P. & S.I., 1922 (I).
Berkeley-Cole, George A., M.R.C.S., 1914 (E).
Black, John, M.B., 1921 (I).
Booth, Leonard H., M.B., 1920 (Col.).
Briscoe, Edward V., L.M.S.S.A., 1921 (E).
Burrows, Walter H., L.S.A., 1883 (E).
Bury, George C., M.B., 1919 (Col.).
Butterworth, Samuel, M.R.C.S., 1882 (E).

Callender, Milton R., L.S.A., 1885 (E).
Cameron, George M., *M.C.*, M.C.P. & S., 1919 (Col.).
Carter, Sidney H., M.D., 1870 (E).
Caw, Alexander R., M.B., 1920 (Col.).
Clark, Harold P., M.B., 1920 (Col.).
Clementi-Smith, Herbert D., M.R.C.S., 1906 (E).
Connolly, William A., M.B., 1922 (I).
Connolly, William P., L.A.H., 1881 (E).
Conrad, Jean, M.D., 1920 (For.).
Coventry, Charles, M.R.C.S., 1896 (E).
Cragg, Cecil C., M.C.P. & S., 1920 (Col.).
Cussen, Gerald E., M.B., 1920 (Col.).

Dalgado, Daniel G., L.R.C.P., 1886 (E).
Davison, Samuel H., M.B., 1912 (I).

Featherstone, George W. B., M.R.C.S., 1891 (E).
Fedullo, Giuseppe, M.D., 1921 (For.).
Fletcher, Dennys, L.S.A., 1902 (E).
Foley, Tigue, M.B., 1920 (I).

Glynn, Patrick D., L.R.C.P. & S.I., 1897 (I).
Goss, Francis H., *M.C.*, M.B., 1916 (E).

Holmes, William S., M.B., 1902 (E).

Ireland, Arthur J., M.C.P. & S., 1922 (Col.)

Joske, Esmond S., M.B., 1919 (Col.).

Kerr, George D., M.R.C.S., 1889 (E).

Litvak, Abramo, M.D., 1920 (For.).

Mackenzie, Andrew H., M.B., 1915 (Col.).
Mayne, Bertie J., M.R.C.S., 1895 (E).
Morrison, David, M.B., 1894 (E).
Murphy, Peter J. B., M.B., 1921 (Col.).

Otabe, Shozaburo, M.B., 1917 (For.).

Parsons, Charles J., L.S.A., 1884 (E).
Peacock, Pryce, L.R.C.P. & S., 1893 (I).
Pellissier, Wilfred V., M.B., 1918 (I).
Pengelley, Mrs. E. T., M.B., 1914 (I).
Petrie, George A., M.C.P. & S., 1919 (Col.).
Pierce, Michael J., L.R.C.P. & S., 1908 (I).
Pigott, Mrs. May, L.M.S.S.A., 1920 (E).
Pires, Joseph O., M.R.C.S., 1871 (E).
Plant, Alexander W., L.S.A., 1886 (E).

Quin, Henry C. E., L.R.C.P. & S., 1901 (I).

Rayner, William, M.R.C.S., 1863 (E).
Robinson, Victor, M.B., 1922 (I).
Rogers, Reginald J., M.R.C.S., 1897 (E).
Rooney, Patrick J., L.R.C.P. & S., 1906 (I).
Rutherford, John V. W., M.R.C.S., 1887 (E).

Scott, Thomas H., M.B., 1897 (I).
Shaw, Miss Alice I., M.B., 1920 (Col.).
Singer, Kildare L., M.R.C.S., 1917 (E).
Smallman, Benjamin F., L.R.C.S., 1876 (I).
Smyth, John F., L.R.C.P. & S., 1900 (I).
Speed, Henry A., M.R.C.S., 1876 (E).

Telford-Smith, Telford, M.B., 1884 (I).
Thom, Mrs. Edith M., M.R.C.S., 1918 (E).
Tippet, John A., *M.C.*, M.R.C.S., 1916 (E).
Tomlinson, James H. E., M.B., 1906 (Col.).
Troup, Howard B., M.R.C.S., 1918 (E).

Underwood, Frank L., L.S.A., 1893 (E).

Vlasto, John A., *M.C.*, M.B., 1905 (E).

West, Lionel F., M.R.C.S., 1891 (E).

Young, Alexander S. W., L.S.A., 1878 (E).

THE LANCET.

LONDON: SATURDAY, DECEMBER 20, 1924.

EPSOM COLLEGE.

IN the year within which we shall be living in less than a fortnight, Epsom College will reach its seventieth birthday, for the College was established as a public school, with a royal medical foundation, in 1855. It was founded by Dr. JOHN PROPERT with the intention of constituting a foundation for 50 boys, the children of medical men, where circumstances had precluded the boys from the opportunities usually enjoyed by the sons of the professional classes; the original terms of the foundation implied that the father should either be dead or be incapacitated from medical practice, though narrow pecuniary circumstances were within the terms of the benefits. QUEEN VICTORIA granted her patronage to the College at the outset, and subscriptions came in promptly, the movement receiving from the beginning the warmest support of THE LANCET whose proprietors sent £1000 in accordance with their words of encouragement. It will be seen that, save for the distinctive connexion with medicine, the foundation was moulded on that of Eton and Winchester, the best facilities for the education of the foundationers being provided, while a welcome was extended for the enjoyment of those facilities to the children of parents who were able to meet the ordinary public school charges.

The constitution of Epsom College is more exactly described in a letter which we publish this week from Dr. RAYMOND CRAWFURD, the chairman of the Council of the College, in an eloquent letter (see p. 1308) urging that with the approach of Christmas medical men should consider the grave claim upon their purses. The appeal of the College puts on them a responsibility to support it which every medical man should feel, wherever, even in the strenuous times we live in, he can discover a surplus. Dr CRAWFURD drives his appeal home with a quotation from the "Pervigilium Veneris," and the words of the unidentified poet make an apt motto for those who undertake to organise regular financial assistance from a body of subscribers. For they contain alike an encouragement to those who hitherto have not subscribed and an incitement to old subscribers to continue in well-doing. Such conduct is, of course, exactly what Epsom College requires from us—first a general spread of the movement among medical men, and secondly a regular persistence in their generosity from those who have already supported the movement. Epsom College has developed into a first-class public school, holding its own with other public schools in class-room and on playing-field, and supplying to the country men who obtain leading positions in public as well as in private life. From the minds of the public at large, as from the minds of many of the medical profession, the comparatively small eleemosynary establishment has tended to disappear; and this is natural, for the charitable activities of the work are strictly confined to the places where they are needed. But the prime reason of Epsom College should none the less always remain in the memory of the medical profession, and perusal of our advertisement columns this week will supply all the needful arguments for generosity.

It should never be forgotten that the greatest anxiety which the medical man may have is in regard to the education of his children. He pursues a profession which, in the majority of cases, and even after an extended period of practice, may not enable him to make large savings, for even in the more prominent walks of medicine the outgoings are apt to reach and maintain a dismal commensuration with the incomings. And thirdly, any incapacity to practise from whatever cause annuls professional receipts as effectually as death. The position of the medical man incapacitated or deeply impoverished while his children are at an expensive school age, and equally the position of the widow of a medical man dying before any opportunity of saving has occurred, is a particularly pathetic one in regard to the children. In such events a foundationership at Epsom College utterly changes for good the whole prospects not only of the boy who is helped —that must always be so—but in many cases of the whole family, the relief from one heavy charge enabling difficulties in other directions to be met bravely and practically. In the spirit of Dr. CRAWFURD's quotation we would urge upon all subscribers to Epsom College to continue and, where possible, enlarge their support, and upon all our readers, who are not yet supporters of the foundation, to set the situation right.

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BACKACHE.

PAIN or aching in the back is a common symptom. It is due to a diversity of causes and takes an equal variety of forms. Several considerations suggest themselves to account for this ætiological and symptomatic complexity: the actual extent of the dorsal superficies, the fact that the back is part of the two great cavities of the body, thoracic and abdominal; the subjacent spinal column in its whole length; the spinal cord within the latter, and the emergence at regular intervals of spinal roots which radiate in part at least through dorsal tissues. Still another consideration is not without significance; the individual is unable to see his own back, which remains a sort of terra incognita to him, explorable only by the diagnostic finger and the abode of mischief-makers that escape his observation. Sir JOHN COLLIE says that pain in the back is the most common element in claims for compensation which are litigated in the courts; he cites the sage advice of the injured workman's "pal"—"When you get hurt, say it's yer back; the doctors can't never get round yer back."

Only by systematising our methods of investigation and our conceptions of ætiology can we hope to steer our course successfully through this wide symptomatological sea. We must not take as our pilot the gynæcologist only, or the orthopædist, or the neurologist, or the internist; rather should the practitioner familiarise himself with the features of the dorsal chart, and trace his way himself. A first rule should be observed unvaryingly; he must ascertain to the best of his ability whether the site of the disorder originating the pain is in the central nervous system or outside it. In respect of the former it is important to bear in mind that many organic diseases of the spinal cord are unaccompanied by pain, both in acute and chronic stages; unfortunately there are exceptions, since irritation of the meninges and consequent root pains occasionally develop in the initial period, for example, of so ordinarily painless a condition as poliomyelitis anterior acuta. "Central" pains, as they have been somewhat loosely called, may be a feature of such cord diseases as syringomyelia or disseminated sclerosis; they are usually referred to some segmental distribution in trunk, back, or limbs. Speaking generally, however, organic spinal cord disease is rarely per se a cause of backache or back pains, while in any case it is commonly diagnosable by symptoms and signs belonging to another category altogether. The case is different in regard to any morbid process implicating meninges, posterior root ganglia, and posterior roots; irritation by inflammation or compression is a potent cause of pains in the back, yet luckily these are always more or less characteristic; they have a topographic signature capable of being read by anyone with knowledge of spinal segmentation. The girdle pains of tabes dorsalis, the unilateral radiation of herpetic neuralgia, of intercostal neuralgia, the root pains of an extramedullary or extrathecal spinal tumour, and so on, sufficiently illustrate the point. It is well not to lose sight of the fact, however, that such radicular neuralgias frequently settle in the periphery of the cutaneous segment or segments involved, and may therefore, on ocassion, be pseudabdominal or pseudo-thoracic; sometimes, also, there is a double pain area, back and front, in the particular root zone concerned. Still confining attention to organic disease of the central nervous system, we may point out that pain limited roughly to the midline of the back, that is, non-segmental, is of infrequent occurrence but deserves passing notice; pain in the back of the neck sometimes accompanies intracranial tumours and is a useful corroborative symptom; diffuse back pain is occasionally found with perithecal spinal tumours, the patient preferring to lie on his side; the neck and back pains of varieties of meningitis may not be combined with any definite radicular spread.

It is when nervous disease in the stricter sense is excluded that the practitioner confronted with a case of backache must needs exhibit the *flair* of the ferret and the wisdom of the savant. Two medical societies have lately[1] set apart whole evenings to consider this aspect of backache. Truly, there is a certain fascination in trailing so elusive a symptom to its lair in bone, muscle, or viscus, or, for that matter, in the world of mental images and unconscious motives. The principles which should guide him in his search are more important than their application in detail, but there is no thesaurus of knowledge in the textbooks; each must work out a scheme for himself, basing it on information derived from personal clinical study or unwittingly absorbed as he reads, or inculcated by some favourite teacher who has himself, it may be, done little else than hand on the torch of bedside skill and acumen. For the student it is true there are charts or maps of the sites of dolor dorsi to be found in various works on the subject, compiled from different sources, and embodying useful considerations, but nothing can take the place of that clinical insight which is compounded of knowledge of human material and of interpretative instinct. The physician has first to decide whether the back pain is genuine or not; that is to say, he must from his general impressions and from the patient's behaviour, tenor, and response to his tests come to a conclusion on the all-important question whether it has a basis in pathological fact or in psycho-pathological fiction (as the materialistically minded may be tempted to place pains that have no recognisable structural origin). To aid him in this respect he must consider the apparent seat of the pain, its variability or otherwise, its extent and intensity, its relation to known anatomical structures, its modifications with pressure, change of position, light touches, its connexion with spinal mobility, its relative depth from the surface; he must at the same time keep steadily before him the possibility of reference of visceral pain, thoracic or abdominal, and of its being but a local manifestation of a general constitutional toxic or toxæmic state. Notwithstanding the manifold difficulties a surprising degree of diagnostic accuracy may often be attained. Pain that radiates from occiput to coccyx or localises itself in more than one region of the spine is much less likely to be organic than hysterical or neurasthenic; even toxic pains, such as those of rheumatism or small-pox, are curiously apt to present but one dorsal seat. Ligamentous, tendinous, fibrous, muscular neuralgias may similarly exhibit a peculiarly local character, as does that of so-called sacro-iliac disease, and if we are to credit the manipulative surgeon, minor spinous articular displacements can be detected by the limited and confined nature of the pain caused thereby. The more serious morbid changes associated with caries and malignant vertebral disease rarely offer room for diagnostic confusion; relative rarities such as tabetic spinal arthropathies, or the typhoid spine, can be recognised more readily than their infrequency might lead one to suppose. As for the large group of referred back pains, the shoulder pains of splenic and liver involvement, of diaphragmatic pleurisy, the lumbar pains of renal disease and uterine disorders, and many more that cannot now be specified, the practitioner must learn by experience the character and the region of the aching complained of, and thus render himself independent of artificial aids to diagnosis. Knowledge of this kind is worth everything to him.

Even with this abundance of ætiological and symptomatic data the matter is far from being exhausted. The student should beware of limiting the range of his vision to the back itself, otherwise he will neglect the aching caused by static leg and foot errors and other factors in muscular imbalance; he will ascertain the occupation of his patient, remembering the "tired backs" of many trades and avocations, of the school girl as well as of the microscopist; he will notice anæmia or chlorosis, and will not miss an attack of influenza or an incipient pneumonia by failing to use his clinical thermometer. In evaluating the significance of backache in the obvious neuropath he will remind himself of the proneness of the lay mind to make its own subdivision of the dorsal regions; the vertebra prominens, and the coccyx, can be felt by the ignorant and become the seat of dynias or topoalgias that have no objective foundation.

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[1] See last week's issue of THE LANCET, pp. 1220, 1232, and p. 1286 in this issue.

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THE PRESENT NEEDS OF PSYCHIATRY.

WHILE the Royal Commission is still sitting and taking evidence it is appropriate to consider the many directions in which the theory and practice of psychiatry is in need of help. In his presidential address to this year's annual meeting of the Medico-Psychological Association, which is now available to the general reader,[1] Dr. M. J. NOLAN dealt with present-day advances in what may be termed the science of medicine, and of psychiatry in particular, in their relation to the actual treatment of the insane. Although, as Dr. NOLAN indicates, a great volume of potentially useful data is accumulating, it must be confessed that research has as yet afforded no clue to the pathogenesis of mental disease as a whole. Senile dementia, general paralysis, and other conditions due to gross structural changes, we may be said to understand, but is there a single type of insanity from which patients commonly (and we must admit, spontaneously) recover, apart perhaps from those caused by external poisons, whose origins and mechanism we can claim to have elucidated? There is, perhaps, a danger, which has certainly a formidable parallel in the field of general medicine, that the advance of psychiatry may be supposed too exclusively to depend on laboratory investigations.

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[1] Journal of Mental Science, October, 1924.

That sympathetic clinical observation must remain indispensable is the lesson of these words from Dr. NOLAN'S address. "At the moment the call in general medical education in America is 'back to the bedside,' as it is felt that 'however perfect the knowledge of disease may be, it is practically useless without the study of the patient also.' I would strongly urge those who, situated as I am, are precluded from the fascinating methods of laboratory research, to be content to read with as full an understanding as possible, the human documents that come within their ken, and to bring to bear on them the interpretations of the best and most practicable findings in general medicine, in psychopathology, in Christian Science, in faith-healing, in psychotherapy and occupation therapy, using anything which may prove of benefit in a particular case." . . . "Thought is life, even when disturbed in function to a pathological degree: the cause of the disturbance is more likely to be discovered by and in a living mind than by the sole observation of dead matter." Although the psychogenic school will subscribe, perhaps, more heartily than the physiogenic to this exordium, it will be generally admitted that the advantages of knowing your patient at present far outweigh any benefits which can be attained by the adoption of a laboratory standpoint.

In the Dominions perhaps more than in this country the primary need may be a comprehensive survey of the problem of mental disease as it presents itself locally. The Commissioner for Mental Hygiene for the Union of South Africa recently concluded a tour of Europe and America, taken with the purpose of studying methods of dealing with mental disorder in other countries. It may well be imagined that, should he be given a free hand, the practical result of this survey should be as good a system for South Africa as prevails anywhere. His constant criticism of the practice prevailing in other countries is directed at the lack of coördination between the numerous authorities concerned, and in some of this one can readily conceive that a study of British methods of dealing with mental deficiency has prompted his observations. Steps are being taken to ascertain the magnitude of the problem in South Africa, and the requirements under different heads, especially that of mental deficiency. The outline of the organisation which it is proposed to set up centres on a primary medical referee, whose business it shall be to delegate cases to suitable institutions. The scheme covers not only insanity and mental deficiency in their broader aspects, but child welfare, delinquency, crime, and all those branches of civil administration and social work in which the services of the alienist are being employed to an increasing extent, particularly in America. It is evident that hitherto efforts in this direction in South Africa have been only sporadic. It may be gathered from the Commissioner's very frank report that the South African asylums are at present grossly overcrowded, and that there is a shortage of candidates for the medical staff (recently qualified medical graduates in Great Britain might take note), and for the higher posts in the nursing service. The incidence of certified insanity is 20 per 10,000 in South Africa, as against an average of 40 per 10,000 in European countries, but the Commissioner has no reason to believe that the numbers actually requiring treatment are less. There are, he writes, many people in South Africa who, but for the sparsity of the population and consequent lack of opportunity to betray their social or anti-social qualities, would be considered so mentally disordered that in a denser population they would be committed to a mental hospital. There is welcome evidence in the report as a whole that the problems afforded by mental disease in South Africa are being attacked as they are revealed with unexampled vigour.

At home the need for putting the available knowledge of mental disease at the disposal of those who can profit by it is at last receiving some attention, and to many important aspects of the subject Dr. EDWIN GOODALL, medical superintendent of the Cardiff City Mental Hospital, calls attention in our columns this week (p. 1273). Further, an intensive course of instruction, lasting one week, was recently held at the Maudsley Hospital for those engaged in various branches of social work. It was organised by the Central Association for Mental Welfare and given under the direction of Dr. EDWARD MAPOTHER, the medical superintendent of the hospital. The course was attended by over 50 workers from all parts of the country representing extremely varied branches of social activity. Naturally, in large part they were those whose work is intimately connected with mental disorder and deficiency, and these included in addition many of the county secretaries of the Central Association for Mental Welfare, representatives of the Board of Control, and various lay officials in charge of institutions and other arrangements. But perhaps even more significant as indicating the growing recognition of the importance of these problems was the presence of many whose work is less specially associated with them. Among such were persons representing county councils, Poor-law guardians, the Charity Organisation Society, the almoners of several of the main London hospitals. Probably there is no one whose work brings him closely into contact with mental disorders who requires convincing as to the necessity for drastic reconstruction, but whether this Commission will be fruitful will certainly in large part depend on the existence of an instructed public, not one ready to rest content with mere depreciation of those struggling to do their best under difficult conditions, but rather one aware of the real defects and requirements. Every attempt was made to stress these points in the recent course, and apart from its strictly practical value to those attending, a useful function of such a course is the creation of numerous foci of accurate information.

Annotations.

"Ne quid nimis."

ENDOCRINE THERAPY IN SENILE CONDITIONS.

GERIATRICS now have their own literature, but it remains true that the pathology of the aged is not as well known as it should be. On the scientific side, although in a large measure forming part of the picture of ordinary pathology, old age has its own peculiar aspects which stand apart from ordinary morbid syndromes and are deserving of special study; from the practical side the neglect may be due to the atmosphere of indifference and antipathy which frequently surrounds old people. Of this familial lack of interest the doctor is sometimes the accomplice, and either from indolence or lack of goodwill considers the diseases of old age as something necessary and irreparable for which nothing can be done, explaining every morbid syndrome by the convenient diagnosis of "senility" without adequate investigation, and restricting himself to the treatment of symptoms alone. Well worthy of study is the remarkable physical well-being and mental lucidity which many old people retain even beyond 80 years of age—their resistance to certain maladies, their relative immunity to some morbid infections, and the relatively benign attitude which certain serious diseases assume in them, such as tuberculosis and epithelial tumours. The arterio-sclerosis itself, which in its multiple anatomical lesions and clinical forms dominates the pathology of the old, assumes in them a very chronic process, and, if it causes slow deterioration of every function, it usually does so in a manner so harmonious and gradual as to allow a definite degree of mental and bodily activity even in individuals who at death show very advanced atheromatous lesions. This is in contrast to the arterio-sclerosis of middle age, allied to such toxic factors as alcoholism and syphilis which presents a very different and more serious clinical aspect. Senile arterio-sclerosis is within certain limits amenable to treatment, and much may be done to improve the condition of old persons who even if ill are far from being incurable.

Falta described a multiple sclerosis of the endocrine glands, and it is probable that many senile troubles are bound up with disorders in endocrine function of atheromatous origin. If this be admitted the rational administration of opotherapic preparations should ameliorate some of the ills of old people.

Such is the gist of the opinions held by Dr. Ugo Daretti of Rome, and published in a recent Italian periodical,[1] together with an account of eight cases of old women who, though of advanced age, were free from paralysis, paresis, renal or pancreatic lesions clinically demonstrable, but who, although enjoying a fair amount of healthy activity, complained of headaches, slight giddiness, insomnia, mental depression, gastric and intestinal dyspepsia, obstinate constipation, and rheumatic pains. These patients were put under treatment with extracts of ovary, suprarenal and thyroid, for a period of three months with the following results. In five there was very distinct improvement in all the symptoms with some reduction of blood pressure, in two a slight improvement, and in the remaining case none except relief to constipation. It is difficult to interpret in detail the clinical disturbances observed in each case, and to divide the pathological responsibility for them between sclerosis of the various arterial regions and endocrine insufficiency, either pluriglandular or of single hormonopoietic groups. It would be still more arduous to attempt an interpretation of the therapeutic advantages obtained and to differentiate the good effects that the opotherapic agent may have produced, probably by a hypotensive mechanism, on the atheromatous lesions from those directed to endocrine insufficiency. But the cases reported by Dr. Daretti seem to show that the administration of endocrine glands in cases of senile arterio-sclerosis may give definite and interesting results, improving the general condition, lessening the arterial syndrome, and especially influencing beneficially the dyspeptic troubles and obstinate constipation of the aged.

KALA-AZAR.

KALA-AZAR is a disease of which little is heard outside India, but in that country, especially in Assam, it is a real scourge. It has advanced relentlessly up the Brahmaputra Valley, 300 miles in the last 30 years, culminating in the Nowgong district, where the population was greatly reduced in the last decade of the nineteenth century with a death-rate of 90 per cent. It was common for two-thirds of the villagers to be carried off, while extensive areas of land fell out of cultivation and became thereby valueless. The story of kala-azar in Assam has already been exhaustively treated by Sir Leonard Rogers, and his work has been taken up and extended by Colonel McCombie Young,[2] who has recently published an account of his efforts during the last 14 years. The period of his experience of kala-azar has been definitely divided by two phases of its manifestations—a period of quiescence following the epidemic decades of the 'eighties and 'nineties, and a more recent phase of widespread recrudescence—the present period of activity being an aftermath of the influenza pandemic. The period of recrudescence appears to follow on a succession of unhealthy seasons, as Rogers first suggested. The Government of Assam has maintained a special staff for combating the disease and the Sanitary Department has fully justified its existence. The survey of 1912–13 showed that the disease remained endemic in certain areas and had persisted as glowing embers in the old track of the epidemic fires. This treatise, which is illustrated by statistical tables, deals successively with the influence of kala-azar on the growth of the population and a description of the preventive measures taken during the quiescent period. The removal of infected families and their contacts from infected sites was so successful that in 1916 the opinion was expressed that in a year or two the extinction of the disease in the Golaghat district might be expected, but the great influenza epidemic changed the whole situation. The general recrudescence led to the adoption of compulsory treatment by intravenous injection of tartar emetic on a large scale as the chief preventive operation. The harrowing sights seen in the pre-treatment days are graphically described—the deserted villages, the abandoned dying, the terribly emaciated survivors. The remainder of the volume deals with the encouraging results of compulsory treatment, the practical methods adopted in carrying it out, concluding with a description of the clinical types of the disease and of the preventive operations undertaken on tea estates. The publication should serve as an incentive to research workers to try to fill in the blanks in our knowledge of kala-azar.

SENSITISED VACCINE.

THE best way of provoking the tissues of the body to develop their protective powers is still far from settled. The remarks of Dr. L. S. P. Davidson at the Edinburgh Medico-Chirurgical Society (p. 1288) on the relative value of different vaccines command attention. That antigen combined with and therefore presumably neutralised by its specific antibody should prove to be more efficacious in the production of immunity than plain antigen has always been something of a puzzle to laboratory workers. In Japan, where apparently the sensitised variety of vaccine still holds sway, the matter has recently received serious attention from the laboratory standpoint. Using sensitised ox corpuscles injected into rabbits, Hjima, working in the Government Institute for Infectious Diseases, has found that they were practically incapable of giving rise to the production of antibody. Immediately after their injection he was able to demonstrate small quantities of immune body in the serum, but this he believed to be due to dissociation of some of the injected antibody from the antigen. His results led him to the general conclusion that "sensitisation of antigen is no less than its neutralisation." The fact that other workers have in the past found sensitised antigen to be active in the production of antibody he believes to be due to lack of appreciation of the time and of the amount of immune body required for complete saturation of the antigen. A further interesting result of his work was the demonstration of the fact that injection of sensitised antigen is followed by a sudden and striking drop in the "complement" of the circulating blood of the injected animal—due apparently to its becoming linked up to the sensitised antigen. Full dosage with a sensitised vaccine may, according to these results, be looked upon as an excellent method for the reduction of the complemental power of the circulating blood without in any way increasing the specific immune body—a consummation hardly to be desired.

DOCTORS' FEES AT INQUESTS.

THE dissatisfaction which has arisen at the recent decision of the L.C.C. to disallow inquest fees to medical officers of certain institutions was voiced at last week's meeting of the Council, when questions on the subject were addressed to Mr. Cyril H. M. Jacobs, Chairman of the Public Control Committee. We reproduce the questions and answers verbatim.

Mr. J. D. Gilbert asked: (1) What is the scale of allowances made by the Council to doctors who give evidence before coroners at inquests?—Mr. Jacobs replied: Section 22 of the Coroners Act, 1887, provides for the payment of a fee of £1 1s. for giving evidence at an inquest and £2 2s. if, in addition, a *post-mortem* examination is made. Sub-section 2 of Section 22 provides that such fees are not payable to certain doctors, such as hospital doctors, &c.

Mr. Gilbert asked: Is there not great dissatisfaction on the part of hospital doctors at the scale of allowances, and is he aware that at a recent inquest a doctor refused an allowance of 2*d.* offered him by the coroner and allowed by the Council?—Mr. Jacobs replied: As a result of representations made by the Government auditor, the Council on July 29th, 1924, decided that, as from Sept. 1st, 1924, the payment of inquest fees should be discontinued to medical officers of hospitals controlled by the Metropolitan Asylums Board, workhouses, Poor-law infirmaries, general infirmaries, prisons, and other medical institutions of a public character. It is a fact that there has been a considerable amount of dissatisfaction on the part of those doctors who previously received fees, and I am aware of the incident mentioned. The Council's schedule of disbursements at an inquest permits the payment of actual travelling expenses, not exceeding 2*s.* 6*d.*, to those medical witnesses who are not paid the above-mentioned fees.

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[1] La Rassegna di Clinica, Terapia e Scienze Affini, July–August, 1924.

[2] Kala-Azar in Assam. An Account of the Preventive Operations, 1910 to 1923, and Notes on the Epidemiology of the Disease in Assam and India. By Lt.-Col. T. C. McCombie Young, I.M.S., M.D., D.P.H., late Director of Public Health, Assam. With a foreword by Sir Leonard Rogers, C.I.E., M.D., F.R.S., I.M.S. (retired).

Mr. Jacobs added that before any alteration of the present practice could be made an amendment of the law was necessary.

POST-OPERATIVE EMBOLISM.

IN the current issue of *Surgery, Gynecology, and Obstetrics* (p. 421) Dr. E. C. Mason of Detroit records the results of his experimental inquiry undertaken into the production and prevention of thrombosis and pulmonary embolism. Dr. Mason found that he was able to produce very rapid coagulation of the blood in the living animal by the intravenous injection of small quantities of a saline extract of dried tissue. The intravascular clots produced by this means showed the lamination and other features characteristic of thrombi formed during life. By bringing about clotting of the contained blood in the temporarily occluded jugular vein by injection of the tissue extract and then releasing the clot into the general circulation, he was furthermore able to procure pulmonary embolism, fatal or otherwise, according to the amount of extract injected. His results led him to the conclusion that tissue extract is a most active agent in promoting the coagulation of the blood. With a preparation of a phosphatide isolated from the liver by Howell, he found that he was able to neutralise completely the coagulant effect of the tissue extract. On the assumption that the original thrombus, dislodgment of portions of which gives rise to pulmonary embolism, is produced at or shortly after the operation—an assumption which would not be universally granted—he suggests that injection of such a preparation at the time of the operation would do away with the risk of subsequent pulmonary embolism.

NATURE OR NURTURE?

THE relative value of heredity and environment in the formation of the child's character and career is a matter of profound and far-reaching importance for mankind. Whether the problem can be solved or not it is immensely worth discussion. As Mr. C. V. Drysdale, D.Sc., pointed out last week at a meeting of the Eugenics Education Society, the belief in the predominant value of heredity was tacitly accepted until the feudal system of society approached its final downfall amid the gathering clouds of the industrial revolution. Since then we have all become imbued with the socialist doctrine of fundamental equality and the necessity of providing equality of opportunity, so far as this is possible. Yet this thesis is by no means proven. So far as animal experiments can take us in this difficult problem, they point to the fact that an environmental factor is transmitted and that the offspring of animals living under different environmental conditions do not, therefore, start life with equal capacities. But the question, "Is poverty a mark of unfitness?" remains without an adequate answer, and to provide one Dr. Drysdale suggested an experiment on the grand scale, whereby some hundred children from poor homes should be brought up from birth in circumstances strictly comparable to those of children born in wealthy or aristocratic families, either by arranging for adoption or by providing special institutions. Apart from the cost of such an experiment, the results might well be open to question. Fitness to grapple with the difficulties of adaptation and reality and to make what is known as "a success of life" depend to a large extent on psychological and physiological factors which elude accurate determination. This fact has just baffled an industrial committee specially set up in Massachusetts to select "gifted children in industry" for preferential treatment. Moreover, no two foster-parents would offer precisely the same conditions to the adopted baby, and the expenditure of (say) £500 a year on education would not in itself suffice to make a successful citizen of any child, be he peer or peasant. An experiment along these lines has already been in progress for nearly 14 years at the Caldecott Community, where, at Goff's Oak, near Cheshunt, some 40 children from poor homes are being educated. No attempt is made to ascribe any superior value to intellectual work; the entire work of house, garden, and farmyard is done by staff and children together, three and a half hours per day being devoted to book studies. Nevertheless, those of the children who have passed on to other schools have all taken their places satisfactorily with those of their own age, and in every case special remark has been made on the keenness and freshness with which they work. Miss Potter, one of the honorary directors of the Community, speaking at the same meeting, confessed that the optimism with which the enterprise had been started had not been wholly justified. It could not be claimed that the children of the Community were really indistinguishable from those of wealthy homes; there seemed to be an element which they did not fully acquire, an element, which, for want of a better word, they called "culture," a nicety of perception of values. This, she felt, had only been attained by two children who had been completely adopted. The others return to their homes thrice yearly for holidays, a circumstance which provides an additional difficulty—viz., a double standard of living.

The experience of the Caldecott Community leads to the conclusion that the mentality of children of poor parents follows the same range of variation as that of any other class of child, but the poor child is always a year behind the rich one in mental age This is ascribed largely to lack of sleep; it is found that, when the toddlers first arrive at the school, they sleep for 19 hours out of the 24, while children of 6 and 7 will sleep for 14 hours when they first return from their holidays at home. Accompanying this tiredness is lack of appetite, the food consumption returning to normal about a fortnight after the return. The second factor which seems to account for mental retardation is the lack of intercourse with parents. These children are not played with and talked to as are those of the more leisured classes, and when they first arrive at the Community their outlook is limited to their immediate surroundings. The recovery is rapid; in three months the eyes are no longer glazed, the child is bright and vivacious, and there seems to be an unfolding of the whole personality. The older the child when admitted the longer does this process take, and the Community prefers not to admit children over 7; in those over 12 there is little or no change. In default of large sums for ad hoc experiment, it seems that those interested in such researches might well give their support to such an interesting and deserving enterprise as that of the Caldecott Community. It is the modern equivalent of the "foundations for poor scholars" of which there was such an abundance in the earlier days of higher education.

OPEN-AIR SCHOOLS.

THE first open-air school was established in Vienna in 1903, Charlottenburg followed in 1904, and London in 1907; all over England these schools are being built, and in America there are now between three and four thousand. Mr. I. G. MacInnes has set himself what is obviously a congenial task in making out a case[1] for the open-air school in New Zealand. It might be imagined that a country with such a large rural population would hardly require instruction on this aspect of educational progress, but school buildings in New Zealand are, we are told, "hopelessly out of date," so great have been the changes in class teaching and class methods. The Minister of Education, in a short preface to Mr. MacInnes's pamphlet, states that the whole tendency among educationists nowadays is in the direction of erecting school-rooms of a much lighter and more elastic type than before, and he characterises it as doubtful wisdom to build schools in massive concrete or brick to last a century which are almost impossible of remodelling or modification. The bungalow type of building with separate class-rooms is recommended for New Zealand, but Mr. MacInnes shows how an ordinary class-room may be adapted by cross-ventilation and the use of a suitable type of large window, certainly an improvement on the Plunket system. A separate bungalow for each class, such as may be seen in certain open-air schools in England, has some advantages:—

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[1] Open-air Schools: A Popular Exposition. Reprinted from the Christchurch Press, New Zealand. Pp. 12. 6*d.*

1. It does away with the distraction of neighbouring classes and noisy corridors.
2. It allows the class-room to be emptied rapidly and quietly.
3. It enables the teacher to let the children out for a brisk run at the end of each half-hour's lesson, in order to stretch tired muscles and straighten bent backs.
4. It gives the architect four walls to work on, and thus ensures a cross-current of constantly renewed air, whatever the direction of wind or rain.

The separate class-room, writes Mr. MacInnes, is, in fact, the key of the whole design. Administration hardly falls within the scope of this excellent little pamphlet, but there are several important details which its readers should take to heart. Children obtaining open-air instruction require extra nourishment; in the majority of these schools the children eat three good meals plus a certain quantity of milk, and they are weighed and measured at regular intervals. A mid-day rest is the rule. No doubt the marvellous improvement in mentality and physique is as much due to the food and rest as to the fresh air, the sunshine, and the educational methods employed. The type of teacher, too, as Mr. MacInnes points out, is most important. "It is essential," he writes, "that teachers in charge of open-air schools should themselves have been trained in their operation and advantages." This does not mean that the services of teachers who have had open-air experience as patients in a sanatorium should be requisitioned. Experience has shown this to be a mistaken policy.

MEDICAL SECRECY AND THE PENAL CODE.

THE new Argentine code does not seem to have solved the very difficult problem of reconciling the conflicting claims of professional secrecy and the criminal law, though, according to Dr. Marcos Victoria,[1] it is an improvement on the old. The violation of professional "secrecy" is, by the Argentine law, a crime per se, as it is in many continental codes, punishable as an offence against individual liberty. Under the new code, not only are the doctors made liable, but all employees of a hospital in whatever capacity, or those in any employment in which their work may entail the possession of medical secrets. Further, it is not necessary that these secrets should be confided verbally and voluntarily by the patient; all information is included which may be acquired by observation or inference in the course of professional duties. The author approves fully of these just and logical extensions. But the new code leaves the position of the doctor very uncertain as regards his duty to reveal secrets in cases of public—i.e., criminal—prosecution; as regards civil suits, the obligation of secrecy remains absolute. Under the former code the doctor was exempt from any obligation to give information. Under the new code the violation of professional secrecy is only punishable when it is done "without just cause." What a just cause is does not seem to be further defined; it is left to the conscience of the individual doctor to decide between the conflict of duties. In the event of his deciding wrongly he is liable to an action for damages by the individual concerned, even in the absence of any proof that he acted maliciously. It seems somewhat doubtful whether he is not also liable to the prescribed penalty for the violation of professional secrecy as his exemption has been removed, but the author relies on the preamble to the code of 1891, which states that violation of professional secrecy being a crime, the keeping of it cannot be one also. It is impossible for anyone unversed in Argentine law and not having the penal codes before him, to judge how far Dr. Victoria is right in relying on the preamble (Span-projecto) of a repealed code, but it seems highly probable that it will not be elucidated until some unfortunate medical man who may have acted in perfect good faith has been victimised in the law courts. There is a good deal to be said for leaving the ultimate decision to the conscience of the individual, provided that when he does act according to his conscience, he is adequately protected, which here seems hardly to be the case. The whole article illustrates the almost insuperable difficulties of trying to reconcile in legislation two points of view which are contradictory and yet can both be maintained by unimpeachable arguments.

POST-GRADUATE ENTENTE BETWEEN AMERICA AND ENGLAND.

IT is now arranged that Dr. Charles Mayo will come to England next summer as President of the annual meeting of the Inter-State Post-Graduate Assembly, instead of Dr. William J. Mayo. Other members of the party will consist of Dr. Franklin H. Martin, of Chicago, Director-General of the American College of Surgeons, Dr. Crile, and Dr. J. B. Deaver, of Philadelphia. Dr. Charles Mayo, in a communication dated Dec. 3rd, has written in the following words: "It certainly will be a big meeting, and I hope it will do a great deal of good not only in creating more harmony between the medical professions of Great Britain and America, but that its influence will be far-reaching on the people who read and hear of it." The meeting is certainly being supported in an auspicious manner and promises to be a large one, and that it will have the useful effect foreseen by Dr. Mayo seems without doubt.

STERILISATION OF TYPHOID CARRIERS BY CHOLECYSTECTOMY.

THE problem of how to sterilise typhoid and paratyphoid carriers has not yet been satisfactorily solved, although the ingenuity devoted to it has found a much varied expression. A remedy which is often effective, but which is also liable to be regarded as unnecessarily heroic, is the removal of the gall-bladder which is often the main, if not sole, reservoir in the body where these bacilli continue to reproduce themselves. In a paper written in French and published in *Acta Medica Scandinavica* (Suppl. VII., 1924) Dr. J. A. Voss, of the Ullevaal Hospital in Christiania, has added to our knowledge of this subject by publishing four new cases in which gall-bladders, infected with typhoid or paratyphoid bacilli, were removed. Cholecystectomy was not performed in these cases with a view to sterilising the patients and rendering them comparatively safe for other people to live with, but because there were signs of cholecystitis threatening the patients' lives. Indeed, in one case there was no knowledge of a previous attack of typhoid fever, and the discovery of typhoid bacilli in the gall-bladder, when it was opened, came as a surprise; typhoid bacilli had not been found in the stools because they had not been sought there. In all four cases several examinations of the stools after cholecystectomy were invariably negative, and the assumption would, therefore, seem to be warrantable that these persons had ceased to be typhoid or paratyphoid carriers. Dr. Voss's comments on these cases suggest that they have somewhat impressed the staff of his hospital, hitherto sceptical as to the value of cholecystectomy for typhoid carriers, with the importance of this measure. He thinks it definitely indicated in one group of cases, and worth serious consideration in another. In the first group there is evidence of cholecystitis—pain or other symptoms. When a person is known to be a typhoid or paratyphoid carrier, and there is the slightest suspicion of these germs causing an inflammatory reaction in their host, an operation is unequivocally indicated. When there are no such symptoms, the decision for or against cholecystectomy in any individual case is a difficult one. Dr. Voss has collected 73 cases from the literature of this subject, and he shows that in about three-quarters an operation rid the stools of typhoid or paratyphoid bacilli. When these cases were classified according to the nature of the operation and of the bacilli in the gall-bladder, it was found that cholecystectomy gave better results than cholecystostomy, and that while four out of every five typhoid carriers were sterilised, only every other carrier of paratyphoid bacilli got rid of them by this means.

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[1] La Semana Medica, Oct. 2nd, 1924.

TRYPARSAMIDE.

THE Rockefeller Institute for Medical Research in New York announces the release of a drug known as tryparsamide for use in the treatment of human and animal trypanosomiasis and selected cases of syphilis of the central nervous system. The drug will be manufactured by the Powers-Weightman-Rosengarten Co. of Philadelphia, and will become available through the regular trade channels in the New Year. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from its sale and that, with the cordial coöperation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible. Tryparsamide, it may be recalled, was introduced by Heidelberger and Jacobs, and was recommended by them for use in the treatment of neurosyphilis. During the past year no less than five reports have appeared in the *Journal of the American Medical Association*, describing the clinical value of tryparsamide, and the results with a series of 185 cases are given in the *American Journal of the Medical Sciences* for August (1924), by Loevenhart and his colleagues. Of these cases, 84 were subjects showing mental abnormality associated with a positive Wassermann reaction of the blood and spinal fluid, in whom there were pupillary changes, disturbance of reflexes, or muscular incoördination. Out of this number injection of tryparsamide produced mental restoration in 37 and distinct improvement in 38; the blood Wassermann became negative in 49 cases. From among 29 tabetic cases 10 were greatly relieved, and these claimed much improvement in health; 3 were entirely freed from pain and showed much better coördination. Tryparsamide produced amblyopia in 13 cases in this series; in all but one however, this cleared up on cessation of the injections. The drug has also been found satisfactory in the Belgian Congo for the treatment of sleeping sickness, but it is hardly likely that either this disease or the early forms of syphilis will ever be extensively treated with a substance which is relatively toxic.

THE Earl of Balfour and the Right Hon. William Graham have been appointed into the vacancies in the membership of the Medical Research Council caused by the retirement of the Right Hon. Edward Wood and Mr. A. G. Church. Lord Balfour has accepted the Chairmanship of the Council.

IN our advertisement columns particulars will be found of the Malayan Medical Services, giving the vacancies for medical and health officers in the Service with a summary of the conditions governing the appointments (v. Students' Number of THE LANCET published on August 30th last). A memorandum giving some general information regarding mode of life, climate, cost of living, and so forth, can be obtained from Sir E. L. Brockman, K.C.M.G., The Malay States Information Agency, 88, Cannon-street, London, E.C.4.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CI.—TREATMENT OF SORE NIPPLES IN THE LACTATING WOMAN.

MODERN management of the nipples lies rather in forbidding the use of the old methods of "preparation of the nipple for nursing" than in inventing new treatment. Nature prepares them much better than does any artificial device. It is, moreover, necessary to give detailed constructive suggestions rather than to assure the patient and her nurse in general terms that all will be well if the nipples are kept clean, since otherwise tradition may prevail.

It is of great importance to avoid sore nipples, not only because any soreness causes extreme pain to the mother while nursing, but because of the risk of a mastitis and breast abscess supervening on any infection of the raw surface.

Management During Pregnancy.

The practitioner should look at the nipples early in pregnancy, since if they are retracted the sooner appropriate treatment is commenced the better will be the result.

(*a*) *Normal Nipples.*—If the nipples are well formed very little treatment is necessary. The patient must be warned to avoid pressure on the nipple by her clothes, and her corsets must not extend above the waist. After the third month the nipples should be bathed night and morning with warm water to wash away any adherent dead epithelium and lacteal secretion, and should then be dried by gentle friction with a rough towel to render them less sensitive to touch. After drying, a little lanolin may be gently rubbed in. This is probably the most satisfactory method of preparing the nipples for lactation. There is reason to doubt the wisdom of bathing them with methylated spirit or eau-de-Cologne; any attempt to harden them in this way almost certainly predisposes them to crack and they may become rough and sore, whereas ointment keeps the mucous membrane supple. The prevention of cracked nipples is analogous to the prevention of cracked lips, and the use of an emollient in the latter situation is certainly more efficacious than would be any application of alcohol. In the hospital class of patient cases are occasionally seen where a septic crust has formed over the nipple owing to lack of cleanliness and accumulated secretion. Such crusts must be softened with olive oil and removed, and the nipple then treated as described above. The matron of the Mothercraft Training Society at 29, Trebovir-road, S.W. 5, recommends sponging the breasts with cold water during pregnancy and scrubbing the nipples with a soft nail-brush. This treatment is said to harden the nipples naturally and to prevent the discomfort, sometimes amounting to actual pain, often experienced by primigravidæ when nursing is commenced.

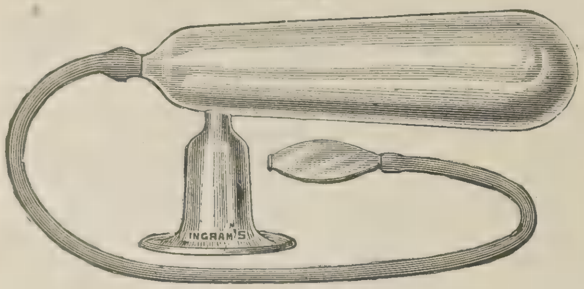
(*b*) *Retracted Nipples.*—If the nipples are retracted the patient must be shown how to encourage them to regain their normal position. This is not such a hopeless proposition as might be imagined, as the nipples are naturally erectile during pregnancy. The best way to encourage a retracted nipple to become erect is by gentle manipulation with the palmar surface of two fingers, one on either side of the nipple. The patient should be shown how to encourage the reflex erection of the nipple, and in most cases the nipple will respond by standing out normally. No force should be used in traction, and both hands and nipples should be clean. This manipulation should be carried out night and morning after bathing the nipples; when the nipple is erect it should be bathed again and lanolin rubbed in, care being paid especially to its apex, which may be fissured and sore. If any attempt is made to draw out the nipple by suction, a self-suction breast reliever (Fig. 1) should be used, never the old-fashioned breast pump (Fig. 2), since any mechanical form of suction exerts undue force upon the nipple. Patience and perseverance are needed in the treatment of retracted nipples—if they are pulled out too hurriedly they will become sore. The old gamps' slogan of "breaking the nipple-strings" both of mother and baby is happily passing into well-deserved oblivion.

Management During Lactation.

The two points to aim at in the postnatal care of the nipples are (1) cleanliness, and (2) avoidance of mechanical injury as far as possible. Before nursing the nipples should be bathed with boric acid solution, and after each feed they must also be bathed to remove all milk, which might decompose on the nipple. They should be carefully dried. If there is any tendency to crack, a little lanolin should be rubbed in round the base of the nipple. The nipple should be protected from the clothing by a pad, about 4 inches square, of sterilised gauze or by a folded large soft handkerchief of silk or old linen; ironing with a hot iron is a sufficient sterilisation for ordinary purposes. Squares of boric lint, although excellent in theory, are in practice rather liable to scratch the nipple. This protective covering must be changed frequently and not allowed to become very damp or hard with dried milk. Overheating the breasts by pads of wool should be avoided.

The following points should receive attention from the nurse in order to prevent sore nipples: 1. The child must not be allowed to drop the nipple frequently and catch hold of it again while feeding; this predisposes to abrasions of the surface from the child's gums. The habit is nearly always due to the baby being held so awkwardly that its nose is pressing against the breast, which prevents it from breathing as it sucks. If it is due to the nipples being retracted the mother should draw out the nipple with a self-suction breast reliever before the child is put to the breast; if the baby is still unable to keep hold of the nipple a nipple shield must be used for feeding. 2. The child should not be put to the breasts too often before the milk comes; three or four times daily is sufficient for the first two days of the puerperium. If there is no milk in the breasts the intense suction exerted by a vigorous child causes a sodden condition of the skin and may even raise a blister on the nipple. 3. Maceration and consequent erosion of the nipple is also caused by too prolonged or too frequent feeding or by allowing the infant to go to sleep with the nipple in its mouth.

FIG. 1.

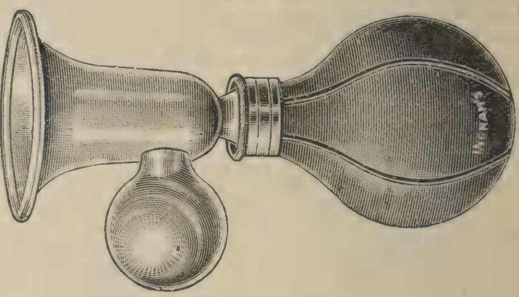


Self-suction breast reliever.

Curative Measures.

When there is a loss of epithelium on the surface of the nipple all septic contact with the eroded surface must be avoided. The nipples must be bathed with boric lotion as usual before and after each feed and must be carefully dried with sterilised or scorched old linen. After drying, an excellent application is the time-honoured friar's balsam (tinct. benzoin. co.). A little should be dabbed on to the nipples and allowed to dry while exposed to the air. The nipples are then protected by the usual pad pinned inside the clothing. If preferred, lanolin or glycerine of borax may be applied in these cases; sometimes glycerine of tannic acid is efficacious. By using alternate breasts for suckling in the ordinary way the nipple is allowed six or eight hours' rest; it is washed as usual for the next feed and the application subsequently renewed. If the erosion is a severe one and the nipple bleeds when the child sucks, a nipple-shield must first be tried, and if the bleeding continues with the shield the breast must not be used for 24 hours; the excess milk may be gently massaged out of the breast to relieve tension and discomfort, by gently but firmly stroking the breast from the periphery towards the nipple, using the flat of the hand and having previously anointed both hand and breast with olive oil.

FIG. 2.



Breast pump.

Another variety of sore nipple shows itself as a crack or fissure usually situated at the base of the nipple, though occasionally seen at the apex. These cracks may be satisfactorily healed in the early stages before infection is present by the treatment described above. If the fissure becomes septic it is much more difficult to cure and is also acutely painful. Antiseptic dressings are indicated and one of the most popular is gauze soaked in perchloride of mercury 1 in 1000. This dressing must be kept damp and not allowed to dry on the nipple. Its poisonous character is a disadvantage, and it must be very carefully and completely washed off before the baby feeds. The same applies to carbolic lotion 1 in 80, which has the advantage of its slight anæsthetic property. Collosol iodine is a satisfactory antiseptic for sore nipples, being effective and non-irritating. Sometimes one or at most two hot fomentations on the nipple will improve a septic fissure, after which tinct. benzoin. co. may be painted into and over the crack and left to dry. The nipple should never be fomented for any length of time as the epithelium becomes sodden and macerated very easily. If fomentations are necessary for the breast on account of coincident mastitis, a hole must be cut for the nipple both in the lint and in the oiled silk and wool covering it. If the fissure is a deep one, applications of silver nitrate are useful in promoting healing. The disadvantage of touching a fissure with the solid silver stick is the pain caused by the method, but it may be worth while in the case of a very deep and painful fissure, cocaine having been applied previously. 1 or 2 per cent. solutions of silver nitrate are not very painful and so in most cases are preferable; the silver solution must be applied with great care to the actual fissure, avoiding all contact with the surrounding skin. In all bad cracks of the nipple it is better to rest the nipple for 24 hours. Even feeding through a nipple-shield or the mother drawing off the milk herself through a self-suction breast reliever tends to open up the crack again.

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Public Health Services.

MENTAL HOSPITALS SERVICE.

AT the *West Riding Mental Hospital, Wakefield,* an investigation begun some years ago into the mode of spread of dysentery and enteric fever has now been brought to a close, and the hospital is now entirely free from these diseases; hundreds of cases occurred during the war years, when bacteriological work was at a standstill, and the numbers have diminished rapidly since, until, in 1923, no cases were recorded. From the professional reader's point of view it is unfortunate that a brief account is not given of the nature of this work, and of the "trustworthy bacteriological means" found for controlling the incidence of these diseases. We are aware from Prof. Shaw Bolton's observations in previous reports that agglutination tests are performed on every new admission; "Widals, ordinary" numbered 531 during the year under review, but on the information available we are at a loss to explain "Widals, spacial (animal)," which numbered no less than 1639. Does this, perhaps, refer to an outbreak of fowl typhoid which is noted as having been diagnosed by the pathological department? In any case the staff are very much to be congratulated on the complete success of their efforts at ridding Wakefield of these diseases. In two other respects the year's work must have been disappointing; new cases at the out-patient department numbered only 37, a slight decrease, and in the nurses' examinations three female nurses only obtained the M.P.A. certificate, and seven men and two women passed the preliminary examination, these being extremely meagre figures for an institution employing over 400 nurses and attendants, where full courses of instruction are given. In future a hospital-trained deputy chief nurse is to undertake the practical nursing training of the staff. Owing to several changes among the medical staff (which now includes six assistant medical officers), the hospital no longer boasts the remarkable distinction of a staff all possessing the D.P.M. Several minor criticisms are made by the visiting Commissioner; he suggests more varied breakfasts, the more liberal supply of overcoats, and the provision of means for heating water and food at night in some of the male dormitories. No less than 31 per cent. of the deaths having been attributable to senile decay, it is suggested that some of the senile dements, in whom any acute mental symptoms that there may have been have passed away, should be accommodated in the workhouses of their districts.

The *Surrey County Mental Hospitals* are Brookwood and Netherne, accommodating 1393 and 980 patients respectively, and each possessing three permanent medical officers and one temporary. At the former hospital there is now a small amount of surplus accommodation, whereas Netherne is overcrowded on the male side to the extent of 16 patients. Both hospitals now possess a visiting physician, surgeon, ophthalmic surgeon, and dental surgeon. There appears to be serious need for new and better classified accommodation, as by the provision of an admission hospital and convalescent villas. It is noted, however, that tuberculosis is adequately segregated at Brookwood, new verandahs for female cases of tuberculosis having been erected last year. The Commissioners visiting this hospital suggest also the provision, when possible, of an operating theatre and a laboratory, the arrangement of one or more open-door wards, and the provision of supper and arrangements for sitting up in the evening for some of the better-behaved patients; at present, apparently, all patients retire at or before 7.30. Criticism at Netherne is directed to the absence of a laboratory, of charts and bed tables in the infirmary wards, of open fires in the day wards, and the comparative lack of books, pianos, and billiard tables; service patients complained of the absence from their wards of the two latter amenities. Regular cinema entertainments are given. It is noted with surprise that both these hospitals are without a charge night officer. Pressure is being brought to bear on the nursing staff to take their qualifying examinations. There is a curious anachronism in the title of this report, which reads in full "The Annual Report of the Lunatic Asylums Visiting Committee in relation to the County Mental Hospitals at Brookwood and Netherne." The relative merits of the expressions "asylum" and "mental hospital" are debatable, and here the strictest impartiality is observed by employing both, but it is generally agreed that the word "lunatic" should be discarded. Used officially it is an unlucky survival of mediævalism.

That the remote situation of the *Inverness District Asylum* does not militate against its efficiency is, perhaps, best evidenced by the fact that all nurses and attendants are expected to enter for the M.P.A. certificate; six candidates were successful in the final and ten in the preliminary examinations this year. There are at present 661 patients in the asylum, and three medical officers. The incidence of tuberculosis appears unduly high, 21 deaths being attributed to this disease last year, but it appears that known cases are efficiently isolated; it does not appear, however, whether the dietary is such as to defend the patients at once against infection by this disease and against the severities of the climate. It is noticeable that adverse criticisms of dietaries, clothing, and kindred provisions are very rarely made by Scottish visiting Commissioners, whereas in the reports of English mental hospitals they are exceedingly common. Whether this contrast may rightly be taken to indicate such a radical difference between the standards of living of English and Scottish asylums, as it immediately suggests, it would be exceedingly interesting to know. Much employment continues to be afforded to patients by the construction of a new reservoir. New arrangements have been made for dealing with outbreaks of fire. The medical superintendent, Dr. T. C. Mackenzie, impressed by the success of the out-patient mental clinic at Dorchester (which serves a somewhat analogous rural district), urges the establishment of a similar clinic in Inverness.

At the *Derby Mental Hospital* there are 400 patients, and surplus accommodation for 67, with two medical officers. The recovery-rate for the year was 32·5 per cent., and the death-rate 8·6 per cent. No enteric or dysentery has occurred; eight cases of tuberculosis are under observation, and an epidemic of influenza affected 80 patients, causing three deaths. The certificate of the M.P.A. is held by 60 per cent. of the male nursing staff, and by 30 per cent. of the female. A "parole ward" on the male side has been instituted, and certain other changes now afford the patients more freedom and recreation than formerly.

Our amazingly incomplete and haphazard provisions for dealing with mental deficiency are recalled by the report of the *Lancashire and Cheshire Society for the Permanent Care of the Feeble-Minded,* which controls one of the few institutions in this country adequately equipped for the training of the mentally defective. Nine-tenths of the income maintaining this work consists of grants from local authorites; the remainder, and the capital for extensions, is provided by voluntary subscriptions, and this report is, incidentally, an appeal for funds. The present accommodation is for 296 inmates; a new house for 25 patients is nearing completion, and the number of applications is greatly in excess of this number. The existing inmates hail from no less than 77 different localities, scattered over the country as far apart as Scarborough and Dorest, Anglesey, and Ipswich. A recreation room is also being built. Complaint is made of the action of certain local authorities in withdrawing maintenance grants at the age of 16, when training is incomplete, and discharge can only result in the child's becoming a cost and a danger to the community.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the health statistics for eight county boroughs for the year 1923 :—

Name of county borough.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Sunderland ..	164,000	24·6	13·8	1·4	1·1	3·0	28	98	4·0
Birkenhead ..	151,400	21·4	11·0	1·0	1·2	2·4	33	63	4·0
Middlesbrough	135,400	27·5	13·0	1·4	1·1	3·0	37	86	3·2
Derby	132,800	19·7	11·6	1·1	1·3	2·2	32	64	2·7
Preston	121,700	19·1	13·8	1·1	1·3	3·4	41	98	4·9
Wigan	91,640	22·4	13·4	0·9	0·7	4·0	47	101	2·4
Bury	57,250	15·0	16·0	1·0	1·5	4·8	48	102	2·3
Great Yarmouth	57,240	18·8	12·9	1·4	1·5	1·7	27	59	2·8

Sunderland.

Dr. Henry Renney reports that of 99 samples of milk examined for tubercle bacilli 11 gave a positive result. As the result of following up the samples to the farms from which they came, several cows with tuberculous udders were discovered by the veterinary surgeon. In every such instance a written undertaking was obtained from the farmer not to send the milk from the affected cow into the borough. Apparently no effort was made to persuade the farmer to have the affected cow slaughtered, and the procedure adopted in Sunderland appears to be an argument for the reintroduction of the Tuberculosis Order of 1914. The maternity and child welfare medical officer, Dr. Eustace Thorp, is greatly impressed with the good results obtained by the admission of children suffering from bronchitis, indigestion, marasmus, and rickets into the wards of the borough sanatorium for infectious diseases. A month or so with regular and good feeding, combined with sufficient rest, often works wonders for such children. Dr. Thorp regrets that there is no ear department in the town capable of dealing with the numerous cases of discharging ears. He also mentions that examples of intensive dental decay are found at all the centres in children from 2 to 4 years old, for which there is as yet no provision. Antenatal work is growing slowly. The midwives in Sunderland attended, during 1923, 76 per cent. of the births.

Dr. N. F. Rowstron reports that an antenatal session for pregnant women suffering from V.D. has been started. Of the 13 syphilitic expectant mothers treated 12 gave birth to healthy children with a negative Wassermann reaction, and one to a child with a weak positive reaction. Of the 12 children born to syphilitic mothers treated in 1922, 11 have remained well, and one who had a weak positive reaction at the sixth month received treatment. The sanitary inspector's report shows that it is impossible to deal with overcrowding owing to the lack of housing accommodation. Only 20 new houses were erected during the year, none of which were municipal houses. The conversion of the privies into water-closets has now been almost completed.

Birkenhead.

Dr. D. Morley Mathieson says that an important step was taken in October, 1923, when the council decided to proceed with the erection of a large number of houses on available sites in the borough, in order to relieve overcrowding and to facilitate the closing and demolition of unfit dwellings. The mistake of rebuilding in thickly populated districts must be avoided, says Dr. Mathieson, for the provision of a healthy situated home for his wife and children ought to mean, and in by far the majority of cases does mean, more to a worker than the convenience of living next door to the shipyard or factory. He discusses the housing question in the Census figures, dealing with it at some length. The total number of private families in Birkenhead at the 1921 Census was 31,475, and the number of "structurally separate dwellings" was 26,630. Of the separate dwellings 3035 were occupied on Census night by two families and 753 by three or more families. A considerably higher percentage of families occupied dwellings of one, two, and three rooms in 1921 than in 1911. Dr. Mathieson thinks the borough is cramped for space, as compared with other towns. The population density was 37·2 per acre in 1921, as compared with 33·9 in 1911, and with an average density of 19·6 for the county boroughs in 1921. If overcrowding is judged by the standard of the excess of two persons in a room, Birkenhead with a percentage of 12·6 does not differ much from the other Mersey-side industrial boroughs—e.g., Liverpool with 12·1, Bootle with 11·1, and Warrington with 12·1; whereas the group of five Tyne-side and Wear-side boroughs have an overcrowding percentage exceeding 30. It is questionable whether this standard for overcrowding gives a means of fair comparison between one borough and another. Dr. Mathieson's table shows that the percentage overcrowding figure for the 82 county boroughs of England and Wales is 10·8. Great Yarmouth heads the list with a percentage of only 2·1, and the percentages for the other towns in the above table are Derby, 3·5; Bury, 4·7; Preston, 7·4; Wigan, 15·3; Middlesbrough, 16·0; and Sunderland, 38·8. Dr. Mathieson shows that the population of Birkenhead has grown rapidly in recent years, and increased by 20,606 between 1911 and 1923, and that there has been no increase in housing accommodation adequate to meet this increase. At the end of the year it was decided to appoint two more inspectors in order to fulfil the council's obligations under the Housing Acts.

The joint sanatorium for tuberculosis at Burntwood for Cheshire county, Wallasey, Chester, Stockport, Stoke-on-Trent, and Birkenhead was opened in November, 1923, as regards 50 per cent. of its accommodation. Birkenhead's share is 32 beds, of which 16 are now available. A trial has been given to Dreyer's defatted vaccine, and Paget's nasal insufflations at the Thingwall Sanatorium, but the results were not encouraging; 12 beds are reserved for the treatment of surgical tuberculosis at Leasowe Hospital. At the end of the year an agreement was being negotiated with the Birkenhead Borough Hospital for the provision of beds for complicated cases of confinement, for complications arising after parturition, for pregnant women suffering from illness or deformity, and for cases of women who cannot with safety be confined in their own homes.

In his school report Dr. Mathieson presses for an open-air school :—

> "From among the children at present attending elementary schools in Birkenhead," he says, "there would be no difficulty in selecting several hundreds, who are physically unfit to benefit by the instruction provided for them in ordinary school premises, but who are forced, nevertheless, to attend school year after year. . . . Valuable time and energy of teachers is being thrown away, and the health, educational future, and wage-earning potentiality of the children concerned jeopardised."

The dental scheme was curtailed in 1922, and Dr. Mathieson makes out a strong case for reopening the consideration of the matter, with a view to adopting the original scheme. Another need of the Birkenhead schools is a coördinated and complete scheme for dealing with crippled children.

Middlesbrough.

Dr. Charles V. Dingle reports that from the sanitary point of view the most important event of last year was the completion of the water-carriage scheme, nearly 9000 conversions having been carried out during the year 1923. Great attention has recently been given to the milk-supply of the town. Experimental work has been done at the corporation farm at Hemlington. The first sample of milk examined from Hemlington gave 367,500 bacteria per c.cm., and *B. coli* in 1/10th and in 1/100th of a c.cm. Instructions were given that the milkers should wash their hands and wear clean overalls and caps, that the cows' udders and hind quarters were to be groomed, and Sirrell's patent pails used. The next sample, after these instructions, gave 17,200 bacteria per c.cm., and *B. coli* in 1/10th of a c.cm., but not in 1/100th. It was found that a considerable amount of dust from the cows' flanks was deposited during milking on the top of the patent pails, so that when the pail was tilted in emptying it into the cooler this dust fell into the cooler. The pail tops were therefore wiped with a damp cloth before tilting, with result that *B. coli* has now been eliminated. The corporation, having put its own farm in order, now recommends farmers whose samples are unsatisfactory to go and do likewise, with very satisfactory and encouraging results. Attention is also being given to the retailers. The premises of many retailers were ordinary dwelling-houses with sheds in small backyards for the business. There were also a number who sold other goods such as "patent fire-lighters, paraffin oil, vinegar, yeast, potatoes and vegetables, meats, dried fish, &c." During 1923 a regulation was passed prohibiting the sale of milk, except bottled milk, in all such general shops. The supply of milk and demand for milk in properly sealed bottles is growing, and up-to-date dairy shops, previously unknown, selling milk, butter, and eggs only are beginning to make their appearance.

Dr. Dingle points out that the decrease of infant mortality has been concomitant with the decrease in the prosperity of the town since 1920. Thus, the rates for the last four years have been 135, 118, 111, and 86 respectively. He points out that decreased prosperity has resulted in decreased pollution of the atmosphere, increased breast-feeding, increased use of dried milk in the place of dairy milk, and an increase in the number of mothers who take advantage of the various activities of the maternity and child welfare department. Alluding to the theory that the decrease in the consumption of alcohol has been a factor throughout the country in bringing about the decline in infant mortality, he states that this has not been an operating factor in Middlesbrough. For the four years 1916–19 the average annual prosecutions for drunkenness were 553, while for the four years 1920–23 the average prosecutions were 1300. Every effort is made to encourage breast-feeding, and 86 per cent. of the dried milk, given under the Milk Order, is given to expectant and nursing mothers. Dr. Dingle thinks that the slight increase in the death-rate from tuberculosis during 1923 may be due to unemployment, poverty, and insufficient feeding, and also to the want of progress in housing. The corporation retain six beds at the Broomlands Home for the surgical treatment of tuberculous children. No Exchequer grant is payable towards the cost of these beds as Broomlands belongs to the Poor-law authority.

The Dacre-street area improvement scheme is being proceeded with. The original proposition was to demolish 62 houses and build 18 new houses on the same site. The Ministry of Health has decided that the site should not be rebuilt upon, and 57 houses will be erected on the Acklam-road garden colony to accommodate the 285 persons dishoused.

Derby.

Dr. A. E. Brindley says that neither cubic capacity nor the number of persons exceeding two to a room gives a true picture of the pernicious results of overcrowding. He gives in his report examples of the disastrous effect in the case of infectious disease, and the urgent need for separate bedroom accommodation for opposite sexes. He also includes in his report extracts from the letters of applicants for new corporation houses to illustrate the conditions under which many families are living. At the same time, he says, there are signs that the efforts of the housing committee are beginning to give beneficial results. Since August, 1919, 799 new corporation houses have been completed. There are now 79 in course of erection, and 160 are about to be begun. During the year 26 samples of milk were examined for tubercle, and four were found to be infected, giving the high percentage of nearly 16. In one of these cases difficulty was found in persuading the farmer to have the three cows found with tuberculous udders on his farm slaughtered, until pressure was brought to bear by the health committee. It is stated that approximately 60 per cent. of the population of the town obtain their milk from the Coöperative Provident Society, and that this supply is pasteurised. Dr. Brindley does not mention whether this society has adopted plant in accordance with the new regulations. The scarlet fever pavilion of the isolation hospital has been greatly improved by the provision of a large verandah, "as it is found that the open-air method of treatment gives far and away the most satisfactory results." Referring to the question of atmospheric pollution, Dr. Brindley says that although Derby is not considered a smoky town everyone will admit that there is room for considerable improvement.

Preston.

Dr. F. A. Sharpe states that during 1923 insulin was made available to doctors for administration to insured persons. The original cost was about 35*s.* for a week's supply, but this has been gradually reduced to about 15*s.* The total drug bill under the Insurance Act was £7933, an increase of nearly £1500 on 1922. Dr. Sharpe thinks the increase may be due to the conspicuous absence of sunshine in 1923, and the low vitality consequent on unemployment. The amount of unemployment benefit paid during the last quarter of the year averaged £3850 per week. Dr. Sharpe draws attention to the excessively high permissive limit adopted for black smoke from factory chimneys. This limit is five minutes' black smoke in a half hour observation, which is five times the limit found practicable in Sheffield. Dr. Sharpe goes on to draw attention to the high death-rate from bronchitis and pneumonia on the Western Lancashire seaboard, which he associates with the excessive industrial smoke. Out of 51 samples of milk examined bacteriologically nine were found to contain tubercle bacilli, a percentage of 18. Dr. Sharpe advocates taking samples from every source of supply at least once a year, and in the case of the larger herds every six months, and the adoption of a uniform system of veterinary inspection throughout the country. A food poisoning outbreak occurred in September, which was found to be associated with potted meat infected by an organism closely resembling the *Bacillus dysenteriæ* (Flexner). A very careful investigation as to how the meat became infected gave a negative result.

Wigan.

Dr. Henry Whitehead again points out how much is needed to make the sanitary conditions of Wigan up to date. The big scheme for the conversion of privies and pail closets has, however, now been put in hand. Great progress has also been made in dealing with insanitary property and in the paving of backyards. The provision of suitable refuse receptacles for all houses, and the adoption of covered carts in lieu of the present open refuse carts are mentioned among the things needed. Crude refuse from ash-tubs, bins, and privies is still tipped without the precautions suggested by the Ministry of Health. Sites for a public abattoir have been inspected but no decision arrived at. The gathering grounds of the water-supply were found to be liable to pollution as the result of an inspection by the health department made in 1922. These supplies are being chlorinated, whilst other suggestions for permanent improvement are under consideration. Dr. Whitehead points out that the infant mortality of Wigan for 1923 was the second highest of the 105 large towns. A maternity home is necessary in Wigan, he says, as confinements often take place under wretched conditions; and more health visitors are essential.

Bury.

Dr. G. Granville Buckley, in commenting on the high general death-rate and the high rate of infant mortality, refers to the nuisance caused by the existence of a large number of privy middens. The conveniences in the borough are as follows. 8223 ordinary water closets, 3184 waste-water closets, 560 pail closets, and 4230 privy middens. "At the present rate of progress," says Dr. Buckley, "nearly 30 years will have elapsed before the whole of the sanitary conveniences have been converted to the water-carriage system." Smoke observations of mill chimneys to the number of 263, each of 30 minutes' duration, were made during the year. The permissible limit for black smoke adopted by the council is two minutes in the half hour, or twice the limit allowed in Sheffield. Particulars are given of five observations in which the limit was exceeded. The average for these five chimneys was 6½ minutes of black smoke and 15½ of "moderate" smoke, and eight minutes of no smoke in the half hour. It is well recognised that there is no such thing as smoke black as a silk hat, and the crucial point in these observations is, what is "moderate" smoke? On the face of it a chimney which only fails to give off smoke for eight minutes in the half hour is doing its "bit" to pollute the atmosphere. The school report shows that there is no open-air school, no dental clinic, and no special provision for dealing with crippling defects.

Great Yarmouth.

Dr. A. N. Stevens mentions that all the dwelling houses in the borough, with the exception of 24, are supplied with company's water, which is obtained from the Ormesby Broad and the River Bure, and pumped into the mains after filtration. The existing 24 wells are, says Dr. Stevens, "without doubt liable to pollution at times, but unless the samples for analysis happen to be taken at one of those times they cannot be dealt with." About 20 per cent. of the mothers of illegitimate children went out to work, and 51 per cent. of these children were artificially fed. No tube bottles were found to be in use. "Bread or biscuit pap was given from an early age in one case only, though this practice appears to have been almost universal amongst the poorer classes of Great Yarmouth a few years ago." Dr. Stevens explains that the duty of the rat officer is not to act as rat-catcher, but to compel the occupiers of premises to take the necessary steps to destroy rats or mice. The corporation have, however, recently appointed an official rat-catcher. For many years it has been the custom for the corporation to pay 1*d*. for every dead rat brought to the health office. During 1923 2712 dead rats were so brought. The hours of bright sunshine recorded were 1653.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 6TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 62; scarlet fever, 2076; diphtheria, 1152; enteric fever, 62; pneumonia, 1150; puerperal fever, 48; cerebro-spinal fever, 7; acute poliomyelitis, 7; encephalitis lethargica, 46; dysentery, 21; ophthalmia neonatorum, 106. There were no cases of cholera, plague, or typhus fever notified during the week.

Dr. R. W. C. Pierce, medical officer of health for Woking, informs us that the 20 cases of dysentery (12 this week, 8 last week) reported by him were notified from the Brookwood Mental Hospital.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 13 from scarlet fever, 37 from diphtheria, 50 from measles, 85 from influenza. In London itself the deaths from diphtheria numbered 17, from infantile diarrhœa 13.

Special Articles.

ST. THOMAS'S HOSPITAL APPEAL:

BANQUET AT THE LONDON MANSION HOUSE.

AT the invitation of the Lord Mayor of London a banquet in aid of the funds of St. Thomas's Hospital was held in the Egyptian Hall of the Mansion House on Dec. 10th, when covers were laid for over 350 guests. The Lord Mayor, who was accompanied by the Lady Mayoress, presided, and in spite of the thick fog with which London was enveloped at the time, there was a brilliant gathering of the supporters of the hospital. An appeal for £60,000 is being made to pay off a debt on the hospital.

The Lord Mayor proposed the loyal toasts, which were received with musical honours, and Lord Darling proposed "Success to the Voluntary Hospital System" in his usual felicitous terms. He believed, he said, in the voluntary system because he was old-fashioned enough to object to everlasting interference by the State. There were those who held that everyone should be brought up by the State, which would probably mean that their fathers would not be allowed to choose their names, and that the great historic families would be known by the letters "A" and "B," and so on. In circumstances of State control, if a man were knocked down on a foggy night by State taxicabs or omnibuses he would be picked up by "uniformed pickers" and treated at the communal hospital and operated upon for whatever malady had been set down for that day. The country, he continued, was best governed by as little State interference as possible. The voluntary system as applied to hospitals had proved a decided success, as shown by the vast sums received from voluntary effort.

Sir Charles Wakefield, who responded, said that there must have been many moments during the last five or six years when the state of the finances of more than one of our great hospitals had been desperate in the extreme, and when there seemed nothing for it but to give up the struggle and seek help from the State. Though the situation was still precarious, it was more promising and more healthy because the hospital authorities had found new sources that were saving the situation. These had not yet been fully developed, but they had saved the voluntary principle. Voluntarism was the very life-blood of charity. "Hand the hospitals over to the control of the State," he said, "and the freedom that secured such beneficent results in treatment and research would be banished for ever. Whatever its virtues in other spheres, in this the State would indeed be the skeleton at the feast. Its icy breath might sterilise, but it would not stimulate."

The toast of "St. Thomas's Hospital" was proposed by the Lord Chancellor, Viscount Cave, who said that when he presided over the Committee which was appointed to find out what was wrong with our hospitals, he came to that inquiry with an entirely open mind, but as those who held the inquisition saw pass before them the procession of presidents, treasurers, governors, officers of the hospitals, and the great physicians and surgeons of the day, the conviction grew upon them that to our English hospital system, which only the English-speaking nations knew, there was owing a greater debt than could ever be paid. He referred to the valuable work which the hospitals did during the war, and pointed out that these institutions were not only training grounds for doctors and nurses, but were centres of research on which we must depend and base our hope of the future.

In his reply, Sir Arthur Stanley, treasurer of the hospital, emphasised the need for a wider appreciation on the part of the public of the work done, and was being done, by St. Thomas's Hospital, and for a realisation of the fact that, contrary to the general opinion, the hospital was not enormously rich. The income derived from its endowments fell far short of the money that had to be spent upon the innumerable branches of its work. He pleaded for a larger number of yearly subscriptions, pointing out that if the hospital could only get two or three thousand of £1 a year each, that would be worth to it as much as a capital sum of £50,000. In conclusion, he said that the donations received from patients were really wonderful. Four or five years ago they amounted to £1400; they had now reached an annual total of £14,000. Sir Arthur Stanley read a telegram from the Duke of Connaught, the President of the hospital, as follows:—

> "I regret that my absence abroad makes it impossible for me to attend the dinner at the Mansion House in support of the appeal on behalf of St. Thomas's Hospital. In the course of my long connexion with the hospital as its president, I have learned fully to appreciate its beneficent work in ministering to the suffering poor, and I am sure that all who are acquainted with the vast extent of its humane activities in the crowded localities of South London will desire the continuance of its work, and will feel it to be their duty, as it is their privilege, to remove the financial difficulties with which its mission of healing is beset. I can never forget that during the war the hospital undertook very heavy work as the Fifth London General Hospital, when it treated 530 military cases every day, in addition to its ordinary civil work."

During the evening, Mr. G. Q. Roberts, the secretary of the hospital, read a list of subscriptions which totalled £42,276. These included £5000 each from Mr. Samuel Samuel, M.P., Mr. Frederick Lane, Lord Bearsted, the William Shepherd Trustees, and the Treasurer and three almoners, £2500 from Lord Riddell, £2000 from Lord Glendyne, £1000 from the Mercers' Company, and £100 from the Lord Mayor.

IRELAND.

(From our own Correspondent.)

The Irish Free State and the Medical Register.

The question of the relation of the Irish Free State to the Medical Register having been raised in the Dail last week, Mr. McGilligan, Minister of Industry and Commerce, made a full statement on the matter. He explained that he had attended a conference on the subject some time ago and it was deemed advisable that certain legislation should be introduced in Dublin and London to validate what had been done previously and continue the operations of the General Medical Council for a period to be defined in the Acts. He had introduced a Bill as a matter of urgency, and while engaged in the Senate he was informed that there was still a certain point in dispute. The Bill had been postponed, and the change of Government in Great Britain had delayed the further consideration of the question. There was no indication on either side of any desire to alter the existing state of affairs. He hoped to have the question settled shortly. Prof. W. E. Thrift thanked the Minister and asked him to do all in his power to hasten matters in order to arrive at a satisfactory termination. The Minister promised that he would lose no time in the matter.

Prize-giving at the Royal College of Surgeons.

Mr. R. C. B. Maunsell, President of the Royal College of Surgeons in Ireland, addressing the students of the College school at the annual distribution of prizes last Saturday, advised the students to make sure of holding the appointment of resident pupil at their hospitals. The resident pupil system was distinctively Irish, and was a most valuable part of education. It taught a student how to examine a sick person, and gave him confidence and "nerve." After qualification he advised them to seek resident appointments as physician or surgeon, if not at home, then in Great Britain. He commented favourably on the method of selecting medical officers for the public service by an expert selection board, a trial of which had recently been made at the instance of the Ministry of Local Government.

Doctorate in Literature for Dr. Kirkpatrick.

At the Winter Commencements of Dublin University the degree of Doctor in Litteris was conferred on Dr. T. P. C. Kirkpatrick, Fellow and Registrar of the Royal College of Physicians of Ireland. Dr. Kirkpatrick is the first medical graduate of Dublin to attain this very select degree. He is the author of several historical studies, dealing with the history of medicine in Ireland.

A Memoir

of

Prof. JOHN IRVINE HUNTER, M.D. Sydney.

By Prof. G. Elliot Smith.

It is impossible to convey to those who have not come under the spell of his personality any adequate conception of the magnitude of the loss anatomy and, in fact, medical science in its widest sense, have sustained in the death of John Hunter. The great name he bore would have overwhelmed a smaller man; but it is no exaggeration to claim that he has added fresh lustre to it. In the brief four years of his professional life this youth was the professor in charge of a department of anatomy, in which great reforms in teaching and research were being achieved. Of this time he spent 18 months travelling in Europe and America widening his knowledge of medical education. His elucidation of the difficult problems of ovarian pregnancy, of the true reconstruction of the Piltdown skull and its significance, of the factors that determine the nature of spinal shock, the comparative anatomy of the oculo-motor nucleus, and especially the functional significance of the sympathetic innervation of striated muscle and the central control of muscular tone were each of them tasks of the first magnitude the successful accomplishment of which would have brought fame to the man who had devoted his life-time to any of them. Yet Hunter did all these things along with his other work before reaching the age of 27 years. The secret of his greatness lay not merely in his knowledge, though it was almost uncanny in its range and precision; nor even in the wide vision and keen insight, which enabled him to find his way through the mazes of the most intricate problems, and appreciate the deeper significance of the information he acquired by observation and ingenious experiment. It was rather the greatness of his personality, his transparent honesty and thoroughness, that compelled respect for his judgment and conferred upon him powers which would certainly have made him one of the really great figures in the history of scientific achievement. Such qualities of mind are extremely rare, and especially in combination with an unselfishness and magnanimity, a charm and joyous understanding that awakened the deepest affection in all who came into intimate association with him.

Early Life.

John Irvine Hunter was born in January, 1898, at Bendigo, in the State of Victoria. So far as can be discovered there was nothing whatever in his ancestry to throw any light upon the source of his genius. Apart from the devotion of his mother his circumstances were singularly unfavourable for the development of his remarkable aptitudes of mind and personality. But in some inscrutable way he seemed to turn to good the grave misfortunes that afflicted him in his early childhood. His intimate experience of surgeons during infancy inspired the child of 7 years with the desire to enter the profession of medicine, which had rescued him from the life of a cripple. A serious attack of pneumonia soon afterwards induced his mother to send the convalescent child to his aunt at Albury in New South Wales, in which State the rest of his life was spent. This move to the Mother State of Australia was a very fortunate chance, not merely because the bursary system opened the way for him through the State Schools to the University, but also because it brought him under the influence of Prof. J. T. Wilson, F.R.S., now of Cambridge, who played a dominant part in shaping his scientific career—as well as his social ideals. During the period of his studentship at the university he had to forego sports, in which he was keenly interested, and spend all that under happier circumstances would have been his leisure time in coaching for a living and to help his mother, who had made great sacrifices to obtain surgical attention for him in his infancy. But instead of becoming depressed by his early struggles he seemed to get an added zest for the joy of life from the feeling that he had surmounted his difficulties. He was a most delightful and joyful companion, and it was amazing that, in spite of the adulation showered upon him by students and the public, he always remained the most modest and unassuming of men.

Academic Honours.

During the last two years of his course he served as a demonstrator of anatomy and displayed a very keen interest in neurology, especially in the sympathetic system, which was destined to be the field of his greatest achievement. While yet an undergraduate he wrote an essay (awarded the Sandes Prize in Surgery) which he called "An Interpretation of Abdominal Pain," using clinical evidence collected by himself as the material for a penetrating and original analysis. When he graduated (with first-class honours and the University medal) in March, 1920, he was at once appointed senior demonstrator of anatomy. But Prof. Wilson, realising that—though there were urgent reasons why Hunter should immediately assume the responsibility for teaching anatomy, some experience of clinical medicine and surgery was of vital importance to an anatomist—arranged with the hospital authorities to let Hunter act as a resident in the Royal Prince Alfred Hospital during vacations.

A couple of months after Hunter's graduation Prof. Wilson was appointed to the Chair of Anatomy in Cambridge and in July, 1920, Hunter became Associate Professor of Anatomy at the age of 23 years. Before Prof. Wilson left Australia at the end of the year he persuaded the University of Sydney to put the youthful professor in charge of the department of anatomy, and to agree to give him the opportunity to widen his experience by visiting medical schools in Europe and America. Hence in August, 1920, he set out for England and he returned via America to Australia in February, 1922.

But before he left Australia the burden of his heavy responsibility seems to have sat lightly on his shoulders, for in addition to the task of teaching and learning to administer a great department, he accomplished three important researches in utterly different fields of embryology, anthropology, and physiology. He cleared up many of the difficulties in the interpretation of ovarian pregnancy, in the real significance of the occurrence of Neanderthaloid characters in aboriginal Australians and in analysing the complicated factors of spinal shock following transverse section of the spinal cord.

His Published Work.

The first of these three noteworthy memoirs was published in the *Journal of Anatomy* in January, 1922. The special value of the case of primary ovarian pregnancy was due to the early period of development and the clearness of the evidence in demonstration of the fact that the ovum was fertilised as the closing coagulum was formed in the mouth of the Graafian follicle and proceeded to develop in the connective tissue in this situation, embedding itself *ab initio* outside the growing corpus luteum of pregnancy. The lucidity of the account of this specimen and the interpretation of its complexities afforded the first indication to the anatomical world at large that a new John Hunter had arisen.

The results of the experimental work that he carried out in collaboration with Mr. N. D. Royle between October, 1920, and July, 1921, were not published until this year ("The Symptomatology of Complete Transverse Lesions of the Spinal Cord," *Australian Journal of Experimental Biology and Medical Science*, 1924, i., 57). By means of an ingeniously devised series of experiments he courageously attacked a difficult problem which had taxed the skill of many of the best experimental physiologists and clinical observer of Europe and America. In particular he addressed himself to the task of deciding whether or not vascular disturbances played a part in determining spinal shock. He showed that the variations in the ultimate results after section of the cord cannot be wholly explained by release of function alone. These may be combined with release of function (due to section of the conducting pathways), vascular changes leading to rapid degeneration. or a temporary stage of hyperexcitability of the nerve-cells. The experience gained in this preliminary investigation was destined to prove of far-reaching importance when in 1922 Hunter and Royle embarked upon the still more difficult task of cutting the Gordian knot of controversy regarding the sympathetic innervation of striated muscle and the central control of muscular tone.

Study Abroad.

But before undertaking this work Hunter spent 18 months in Great Britain, Europe, America, and New Zealand, getting into touch with the medical schools of the world. He went first to his former master, Prof. Wilson, in Cambridge, who magnanimously allowed us at University College, London, to have the privilege of Hunter's stimulating help for a whole year. During that time he occupied the position of an honorary lecturer; and he taught and carried on research, gave addresses to various societies, studied clinical methods (especially neurology) in London as well as in France, Holland, and Germany, and visited and made himself familiar with the methods of anatomical departments in most of the British and many of the continental schools. He carried out an important research upon the oculo-motor nucleus of *Tarsius* (*Brain*, 1923) which, taken in combination with the results obtained by Brouwer, sheds important light upon the problems of human evolution. He made an intensive study of the fossil remains of men and devoted particular attention to the Piltdown and Rhodesian remains in the British Museum He devoted much time and energy to the problems involved in the reconstruction of the Piltdown skull, and showed that when the occipital region is properly reconstituted and orientated it presents a much closer analogy to the condition found in the new-born African anthropoids than does any other human skull. By demonstrating that there is no disharmony between skull and jaw he has eliminated the chief factor in the controversy that had been raging for ten years before his work was done. His monograph on the Piltdown problem, written in 1922, has not yet been published. During the short time he spent with Dr. Ariëns Kappers in Amsterdam, he completed an investigation on the forebrain of apteryx (*Koninklijke Akademie van Wetenschappen te Amsterdam*, 1924), for which he was awarded the M.D. degree of the University of Sydney and the Unviersity medal.

On his way back to Australia he spent nearly three months visiting American and Canadian medical schools, and not only acquired a knowledge of the scientific workers and their methods, but also rendered a great service by expounding in lectures and demonstrations the meaning of recent anatomical and neurological work in England. In particular he did a great deal toward making Dr. Henry Head's work on aphasia understood. On his return to Australia he was made full professor of anatomy, being given the Challis Chair, which Prof. Wilson had formerly occupied; and he set to work to introduce the far-reaching changes incidental to the restoration of histology to the department of anatomy. With the experience gained in his pilgrimage abroad he came to exercise an influence in the medical school and University, worshipped by the students and trusted implicitly by his colleagues.

But the heavy work which these things involved did not prevent him from embarking upon a new and most formidable task, the experimental investigation of the problems of muscular tone, the solution of which had hitherto defied the leading physiologists and neurologists. He attacked this intricate conundrum with confidence and courage. His experimental work upon the effects of section of the spinal cord gave him technical experience and practice in observing the effects of lesions of the nervous system; his association with Prof. Kulchitsky at University College had given him an exact and certain knowledge of new facts relating to the sympathetic innervation of striated muscle which were of fundamental importance in the attempt to solve his problem; and his experience of the work at Queen Square, the researches of Dr. Henry Head, and Prof. Stopford's work in Manchester, strengthened his assurance boldly to attack the problem. He had explored the field of neurology and acquired the wider vision; he had acquired the experience of solving his own problems and of seeing other people solve theirs; he was ready to defy armchair critics and boldly to attempt the solution of he enigma of muscle tone.

Work on Spastic Paraplegia.

For several years Mr. Royle had been endeavouring to devise some means of alleviating spastic paraplegia. He had tried the usual surgical procedures on human patients and by experiments on animals tried to discover some new operations, without much success. He put his difficulties before Hunter on the latter's return to Australia. Hunter showed him some of Kulchitsky's histological preparations which revealed quite clearly that, contrary to the opinion expressed by Boeke and Aghdur, the sympathetic fibres to striated muscle did not go to the same muscle-fibres as the medullated nerves. He suggested that they should cut the sympathetic supply to an animal's limb and study the result. They discovered that section of the sympathetic did not destroy tone, nor even necessarily reduce it. The change in tone was qualitative rather than quantitative. That aspect of tone which Sherrington calls "plastic" is the function of those muscle-fibres innervated by the sympathetic: whereas "contractile tone" (as Langelaan has called it) is a function of the voluntary and contractile fibres innervated by medullated somatic nerves and is therefore not diminished by section of the sympathetic nerves. This fact is the principle that underlies the surgical operation which Hunter suggested (and of which he devised the technique) for the alleviation of those cases of spastic paraplegia due to an excess of plastic tone, but *not* for those in which the contractile tone alone is responsible for the spastic condition. In the hands of Royle this operation has yielded results which must seem incredible to those who have not witnessed them. It has placed in the hands of the surgeon a technique which is destined to relieve a considerable group of sufferers from spastic troubles not only of voluntary muscles, but also of visceral muscles, such as those of the stomach and intestine, the bladder, &c.

But Hunter has extended the field of his experimental investigations and has studied the nature of the proprioceptive reflex arcs that are concerned with the maintenance of the two varieties of tone. Deiter's nucleus and the vestibulo-spinal tract form integral parts of the somatic arc regulating contractile tone: whereas the ponto-spinal tract (Collier and Farquhar Buzzard) is an essential part of the sympathetic proprioceptive arc regulating plastic tone. His investigations have also shed a new light upon the rôle of the frontal cortex, the corpus striatum, the red nucleus, the substantia nigra, and the cerebellum as influences affecting tone. Hunter and Royle were invited to New York to deliver (Oct. 20th) the John B. Murphy oration on their work (see *Medicine, Surgery and Gynæcology*, December, 1924), and they gave demonstrations in many of the great medical centres of the United States and Canada. Hunter then came to England to expound the outcome of his work and to meet those who criticise his results.

By a tragic fate he was struck down in the very week when he had hoped to demonstrate to those best qualified to appreciate it the new vision of neuromuscular function created by his genius and insight. He died on Dec. 10th at University College Hospital of enteric fever contracted before his arrival in England. He was so absorbed in the mission that had brought him to England as to be unconscious of the gravity of the illness from which he was suffering. The last lecture he gave was delivered in the anatomy theatre in Cambridge on Dec. 5th, the department of the master who had played so large a part in guiding his life and shaping his aims. To those who have come under the spell of his genius and learned the truth of the teaching for which he has given his life it must ever remain a duty and privelege to expound his work, in the effort to convince others of its truth and to extend its applications by experiment and clinical application.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj. W. W. Browne to be Lt.-Col., vice Lt.-Col. and Bt. Col. G. J. A. Ormsby, promoted.

Maj. G. A. K. H. Reed to be Lt.-Col., vice Lt.-Col. A. W. Sampey, decd.

Maj. and Bt. Lt.-Col. J. M. H. Conway to be Lt.-Col., vice Lt.-Col. H. M. Morton, to retd. pay.

Maj. S. M. W. Meadows to be Lt.-Col., vice Lt.-Col. A. D. Waring.

Capts. to be Majs.: J. Hare and E. U. Russell.

Lt. R. Murphy to be Capt.

Lts. (on prob.) J. R. A. Madgwick and K. Lumsden resign their commns.

TERRITORIAL ARMY.

Maj. (Prov.) J. Kinnear is confirmed in his rank.

Sanitary Companies.—Capt. J. B. McGovern, from Hampshire Regt., to be Capt.

Supernumerary for Service with O.T.C.—Lt. N. F. C. Burgess, from Gen. List, T.A., to be Lt., for service with the Medical Unit, University of London, O.T.C.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. D. H. Scott resigns his commn. and retains the rank of Maj.

INDIAN MEDICAL SERVICE.

Lt. R. McRobert (prov.) to be Capt.

Capt. W. H. Critien and Lt. Ambika Prasad Trivedi relinquish their tempry. commns.

ROYAL EAST SUSSEX HOSPITAL.—Without any regard to the fact that this new hospital at Hastings is a threefold building with special new services, as compared with the old building evacuated in November last year, rumours have been current that the hospital was being run on more expensive lines than was absolutely necessary. The transfer from the old building to the new involved extra expenditures, some of which were foreseen and some unforeseen, and the balance-sheet disclosed an increase in the outgoings of some £3000. At the last annual meeting the governors appointed a committee of investigation, whose report, which has just been presented, shows that the rumours were quite groundless. The satisfactory nature of the report is proving a useful stimulus to the special effort that is being made in Hastings and the district served by the hospital to liquidate a debt which still amounts to £6000.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editor of The Lancet.

Sir.—With the approach of Christmas, a season in which humanity at large relaxes its purse-strings, I ask your readers to bear patiently with me while I expound to them the work and the needs of one of the great medical charities.

The Royal Medical Foundation of Epsom College exists (*a*) to give pensions to 50 aged or disabled medical men or their widows, and (*b*) to provide, free of charge, a good public school education, together with clothing, maintenance and pocket-money, to 50 sons of deceased or disabled medical men. The Medical Foundation, so far as it is educational, is part and parcel of Epsom College, which is a public school open to all, but aiming especially, according to the intentions of its founder, at affording to the sons of medical men generally a school education at as near cost price as possible. Generous benefactions have augmented the value of many pensions, and increased their number, so that last year the College bestowed no less than 166. That alone alleviates a sensible part of the destitution that befalls the unlucky in our profession as in any other. But the part relieved is not nearly large enough, and to do much more, much more money is needed.

Perhaps, however, it is our educational work that awakens the warmest and widest sympathy. There is very keen and widespread competition for the Foundation Scholarships, which have given to so many needy boys a start in life, open to them in no other way. The expenditure on these has been greatly increased owing to the circumstances of the war and growing educational needs.

To those who may catch sight of this letter I appeal to set it aside for perusal after a satisfying Christmas dinner; to sit down then in an easy chair with a pipe, and with closed eyes to conjure up before their minds a vision of their own wives, left widows in need, and suppliants to humankindness for the upbringing and perhaps the very bread of their own necessitous children. Then let them at once, before the image has dissolved in the welter of work, draw up to their table and write us a cheque for such a sum as the spirit has moved them to give. I warrant that the whole séance shall add to, not detract from, the gladness of their Christmas festivities.

Commercial travellers, haberdashers, and others provide tens and hundreds of thousands of pounds yearly for their needy; medical men give us less than four thousand for theirs. At present one medical practitioner in sixteen helps us; if all would help with half a guinea yearly, or better still, because easier of fulfilment, if half would help with one guinea yearly, we should multiply our present income by six. In five years the Medical Foundation, at its present dimensions, would be permanently endowed, and all wearisome begging would be at an end, to the great advantage of the College. With like support for a further five years we could go forward confidently to make our benevolent work commensurate with the full needs of the profession, and our school, with due regard to the intentions of our founder, second to none and an example to all, and an object of justifiable pride to the whole profession. So trifling an individual sacrifice for so immense a common good cries aloud for its accomplishment!

Let me first lay my own gift on that altar by trebling my own subscription, so that I may earn the right to appeal to those who already help us and can do more to do it, and to those who do not help as yet to come to our aid.

"*Cras amet qui numquam amavit, quique amavit cras amet.*"

One guinea annually, or a single donation of ten guineas, makes a governor and gives ten votes at each election in June of foundationers and pensioners, and each additional guinea annually gives ten votes more. Voting papers, with details of candidates, are sent in advance to every governor. Seldom a list that makes no direct appeal; sometimes it will be the voice of a dead friend asking help for those he has left behind.

Please send a subscription or donation to the Secretary of Epsom College, 49, Bedford-square, London, W.C. 1, who will be glad to give any information and welcomes personal visits at any time.

I have the honour to be, yours obediently,

Raymond Crawfurd, M.D.,

Dec. 4th. Chairman of the Council of Epsom College.

DENTAL DRESSERS.

To the Editor of The Lancet.

Sir,—I am instructed by the Council of the School Dentists' Society to forward you a copy of a report, issued by my Council, as a criticism to a scheme, initiated by Dr. Sidney Barwise, medical officer of health for the County of Derbyshire, for extending the duties of the school dental nurse or dresser to operative procedure.

I am, Sir, yours faithfully,

Grantley Smith,

Group Hon. Sec., The Dental Officers' Group,

Dec. 9th, 1924. Society of Medical Officers of Health.

Report.

The Council of the School Dentists' Society, while not opposed to the system of dental hygienists as carried out by Fones in the United States of America, is strongly opposed to any system by which operative dental treatment, such as the extraction or stopping of teeth, is carried out by unregistered persons. The system initiated by Fones is confined to the surface treatment of the teeth and gums, and as such is a valuable adjunct to the preventive side of school dentistry. Similarly school nurses are an invaluable and necessary part of a school dental clinic, not only in assisting the dentists, but also in looking after the children and parents before and after treatment.

The objections held by the Council to any such system as that practised in Derbyshire are as follows:—

1. There is *no* shortage of dentists to meet existing and increasing demands of local education authorities.

2. That school dental treatment being still in a developmental stage has its strongest point in that it is carried out by experienced qualified dental surgeons. It is of the utmost importance to the success of the work that the confidence of parents, children, and school teachers be gained and retained. The confidence at present reposed in dental clinics depends largely upon the fact that the work is done by experienced *dental surgeons.*

3. *Inspections in Schools.*—The fact that school inspections are carried out by the school dental officers is of vital importance to the establishment of good feeling between the schools and clinics. The inspecting officer must be prepared to answer authoritatively any question which may be addressed to him. At the same time it is impossible always to be dogmatic when asked to specify definitely what treatment is required. A diagnosis which has to be corrected subsequently is liable to undermine the confidence of parents and children, since first impressions are strong. School dentists have had occasion to complain of school medical officers in this respect.

4. The claim that the operative dental treatment carried out by dental dressers in Derbyshire is a success by no means justifies a general application of such a system. A system which is successful in a county area may be disastrous if applied to urban districts where conditions are different. At present there are many complaints in regard to school dental treatment even in the best-regulated areas, and the Society is allowed by the chief inspecting dental surgeon to the London County Council to say that in London these cases largely relate to the treatment of temporary dentition. All school dentists know that the treatment of temporary dentition is one of the most difficult branches of dental surgery. If, then, difficulties arise in the case of specially selected experienced dental surgeons, as in London clinics, complaints would certainly be much more prevalent where dental dressers are allowed to undertake the extraction and stopping of temporary teeth.

The Council regards the school dental service as an integral part of the Public Health Service. It recognises the need for extension and reform, and in particular, emphasises the importance of developing the preventive side of school dentistry. The services of dental nurses or hygienists as they are called in the United States, could be most advantageously used on the side of prevention.

AN INDICTMENT OF THE PANEL SYSTEM IN A HOSPITAL APPEAL.

To the Editor of THE LANCET.

SIR,—In a recently published appeal by Mr. George Verity, chairman of Charing Cross Hospital, appears the following passage :—

> “ Look what the Government has done with the Insurance Act—the biggest fraud ever planted on a nation since the South Sea Bubble. Millions and millions have been taken from you and what is there to show for it ? Insufficient sanatoria for consumptives, no provision for prolonged medical treatment and surgical aid, no grants for X-radiology or research. No, as far as I can make out, the people who are supposed to benefit by the Insurance Act, when they feel ill, are told to put their tongues out and be examined and then told to go home and get well again. Of course the lucky ones do get a blue pill or a black draught to help them.”

Effusions of this sort are too common in the ordinary way to attract much attention ; coming as this does from the chairman of a metropolitan hospital it can scarcely be thought other than remarkable. Mr. Verity's sweeping assertions regarding the working of the insurance system are an indictment of that section of the medical profession concerned, no less than of the system itself.

This appeal of the Charing Cross Hospital for funds rightly emphasises the beneficent and excellent work of the hospital. There is, however, some irony in this appeal on the part of a hospital proceeding to hold up to obloquy and ridicule a considerable section of the medical profession at a time when the General Medical Council is exercised in purging the profession of the vice of advertising. No doubt a greater latitude is permissible to a hospital tendering its own welfare than is accorded to members of the medical profession. When, however, Mr. Verity's appeal goes the length of stifling veracity in a barefaced manner towards one section of the medical profession, as occurs in the passage noticed above, whilst extolling elsewhere the work of a hospital staffed from that same profession, it can fairly be objected that appealing on behalf of a hospital has become objectionable and the limits of decency exceeded.—I am, Sir, yours faithfully,

Bognor, Dec. 9th, 1924. SAMUEL ARMSTRONG LANE.

MIND AND MATTER.

To the Editor of THE LANCET.

SIR,—Much of Prof. C. S. Myers's presidential address in the Section of Psychiatry, Royal Society of Medicine, as reported in THE LANCET for Nov. 29th, is so weighted with assumptions and nebulous conclusions that I venture to ask for permission to offer a few words of comment.

His view that the reflex act is posterior phylogenetically to a “ primordial mental activity which preceded the development of conscious activity,” stamps Prof. Myers either as a perpetrator of paradoxes or a hylozoist. The physical basis of life and mind is traceable through ever-increasing complexity of structure and cell dispositions, from the relatively undifferentiated protoplasm of the protists, through the simple syncytic nerve network of the sponge to the intricate synaptic nerve network of man. Hand in hand with this increase in complexity of structure goes increase in complexity of function. The reflex act asserts itself more and more, the intelligent act less and less, as we trace back the phylogenetic and ontogenetic paths. In reality, *all* action, automatic reflex, instinctive, and intelligent, must originate in an extra-organismal energy, and must, therefore, be reflex. The main differentiating feature of the so-called intelligent act is a relatively long *delay* period between the impact of the stimulus and the organism's response. Natural selection has fostered in the cortical neurone a capacity to delay, perhaps indefinitely, the response to a stimulus, the impressions from the latter being stored up ; meanwhile, by effecting contacts with other neurones in the association field, readjustments are made in the light, so to speak, of previous responses to similar stimuli. The final response to the stimulus, which may not occur for days, perhaps years, is both variable and complex ; the differences in responses to similar stimuli being governed by the effects on the organism—as recorded in its nerve-mechanism—of its previous responses to stimuli. The physical machinery of the simple reflex arc is receptor—transmitter—effector ; that of the delayed reflex arc, the arc of intelligent action, differs by the interposition between the “ receiving ” and “ transmitting ” cells of the delaying cells—the intercalary cortical neurones. The involved actions of a candidate for Parliament during a General Election differ only in degree, not in kind, from the contraction of his pupil to a strong light.

Prof. Myers regards “ consciousness ” as a selector of its environmental stimuli. Is it not rather the organism in a particular state of consciousness that is the selector ? Is it not the “ selecting ” that constitutes the consciousness ? In any case, the statement is a rash, though somewhat concealed, assault on the so-called materialistic position. Consider the conditions of existence of the human organism and it will be seen that its so-called power of selection is in reality itself determined by its very environment. It is forced to select in this or that way by circumstances. It cannot choose its own parents, nor the long lines of ancestry spreading out fanwise behind them. The race to which it belongs, the historical period of its birth, its up-bringing and education, are all beyond its powers of selection. It can modify neither its nature nor, at any rate in early life, its nurture. In its race with competitors it is frequently adversely handicapped both at the start and throughout the course. It is a victim of its physical structure ; against the insurgent demands of the ever-activating secretions of adrenals, thyroid, parathyroids, testes, ovaries, and hypophysis it is practically helpless. We know what the worthy Bishop said when he saw the convict. But what did the convict say ?

Prof. Myers is, indeed, an obscurantist where he deals with the nature of consciousness. He says :—

> “ . . . Matter is now regarded as a manifestation of electric forces, a product of activities. What now of mind ? Is not this likewise a product of activities ? . . . Are not the hidden activities of mind and matter of greater import than their more obvious products ? Are not the respectively material and mental characters of these products due ultimately to such activity itself ? ”

Now, “ activities ” can only take place in a “ something that is active,” and as we are not told what that is, whether brain-matter, ordinary matter, ultra-matter (electrons) or the hypothetical ether of space, we must, perforce, call it “ x.” (The expression “ activity of mind,” makes of “ mind ” a material entity, for, as just indicated, activity implies a something active ; but all scientific evidence points to “ mind ” being, not an entity, but a series of processes taking place in an entity—viz., the “ highest unitary system of neurones ” in the brain.) First the lecturer postulates mind as a “ product of the activity of ‘ x.’ ” Then this “ product of the activity of ‘ x ’ ” is given “ activity ”—thus at the same time making of the product an entity. Then, the “ activity of the entity, the product of the activity of ‘ x ’,” engenders another “ product.” This “ product of the activity of the entity, the product of the activity of ‘ x,’ ” is then endowed with a “ mental character.” And finally we are asked if the “ mental character of the product of the activity of the entity, the product of the activity of ‘ x,’ ” may not be due to such “ activity ” itself ? A fairly good example of the unutterable confusion resulting from circular argumentation, the abuse of words, lack of definitions, and the attempt to explain the little known in terms of the unknown. The word “ mind,” like “ life,” is a pure abstraction. Such indefinable words are out of place in scientific polemics, at any rate unless and until agreement is attained as to what is meant by the words. It would, of course, be pedantic to discountenance the use of such a word as “ mind ” in ordinary parlance, though even here it is well to remember that at best it is but a *mot de convenance* epitomising all the processes and states incident to multifarious living organisms, whether the migration of the bacillus towards a solution of malic acid, or the coördinated movements of such plants as Drosera and Venus's fly trap in preventing the escape of their insect captures, or whether the solving of mathematical problems in the cortex of man. Thinking matter we know, and not thinking matter we know, but "mind" is a figment of the distorted imagination. The practical humanitarian does not attack the abstraction "poverty," but the concretes, "man," "house," "food," "clothes," &c. It is to research work in connexion with living matter that we owe our knowledge of biology, and it is to research work in connexion with thinking, feeling, and irritable matter that we owe our knowledge of psychology. Directly the biologist or psychologist loses sight of these material entities, living, feeling, and thinking matter, and pursues such will-o'-the-wisps as "life" and "mind," he will find himself floundering in the metaphysical bog.—I am, Sir, yours faithfully,

C. MARSH BEADNELL,
Surgeon Rear-Admiral.

Royal Naval Hospital, Chatham, Dec. 13th, 1924.

THE CLINICAL SIGNIFICANCE OF CONSTIPATION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Dec. 6th Dr. E. G. March states with unquestionable truth that intestinal toxæmia may exist without apparent stasis. Commenting on this in your current issue, Dr. A. C. Jordan writes that even in such cases evidence of stasis may be obtained by radiological examination. While I would readily accept this statement as a possibility, to regard it as an invariable fact would, in my opinion, be wrong. To look upon stasis as an invariable precursor and associate of toxæmia is to make it the essential factor in the production of that disorder, and clinical evidence does not support this view. On the one hand stasis of severe grade may exist for years without producing ill-health, while on the other toxæmic symptoms may be ushered in by an acute diarrhœic illness such as, to take an extreme example, dysentery and post-dysenteric colitis.

The essential factor in the production of intestinal (or as I should prefer to call it "colonic") toxæmia must surely be the loss of the impermeability of the wall of the colon whose special function it is to prevent the absorption of poison. Where this function remains normal no toxæmia will result, but where it is impaired toxæmia may arise; in either case in the presence or absence of stasis. No one can doubt that if the colon permits absorption the normal fæces are capable of producing toxæmia. If this view is correct, intestinal toxæmia may be regarded as arising in the following manner: (i.) The essential factor is the abnormal porosity of the colonic wall. (ii.) This loss of impermeability is due to a condition of catarrhal (or more severe) colitis. (iii.) This colitis may be due (*a*) to an infective process, or (*b*), as in the majority of cases, to chemical poisons emanating from the decomposition of stagnant fæces. Such decomposition is, of course, a bacterial process but cannot be regarded as the result of an infection in any clinical sense: frequently the fæcal organisms are normal in type and proportions.

The colitis once established, it may be maintained with its associated toxæmia by a variety of factors of which constipation is the commonest. But even in the absence of stasis the colitis may still continue from improper diet, abnormal infections, irritating purges, and possibly, for all I know to the contrary, the normal toxicity of fæces. Without going into further detail, it will be evident that the treatment of colonic toxæmia will be very different according to whether the disorder is regarded as essentially due to mechanical, infective, or inflammatory causes.

I am, Sir, yours faithfully,

Harley-street, W., Dec. 13th. REGINALD MILLER.

THE NERVOUS ELEMENT IN LUNG COLLAPSE.

To the Editor of THE LANCET.

SIR,—The admirable and instructive account by Dr. J. C. Regan, in THE LANCET for Dec. 13th, of a case of lung collapse in poliomyelitis is of great interest and importance, although the point is one that has not altogether escaped attention. Some of us have been accustomed for several years past to point out at the bedside how "basal collapse" is not at all uncommon in cases of poliomyelitis and encephalitis, and may in a few days be followed by frank signs of pneumonia, broncho-pneumonia, or bronchitis. And this initial "collapse" has been aligned clinically with the similar "inhibition" that occurs in the cases spoken of as "epidemic diaphragmatic pleurisy," "epidemic diaphragmatic spasm," and the like, and in those of epidemic hiccup associated clinically or epidemically with encephalitis lethargica. The converse problem is encountered when we recognise what Huxham described 150 years ago—paraplegia in association with peripneumony, and with what Foa taught—namely, that infiltration and œdematous swelling is to be met with in the spinal cords of persons dying with influenzal pneumonia.[1]

This clinical combination, *if looked for*, is less rare during influenzal and encephalitic prevalences than may be thought. Indeed, during 1918 I found in one ward, under the care of one physician, three cases diagnosed as pneumonia, each of which, together with bladder weakness and absence of knee-jerk, displayed, at least temporarily, flaccid palsy of both legs. This was during the height of the "encephalitis lethargica" epidemic of that year. During the last month or so I have myself had charge, in one hospital, of three patients whose initial illness was "influenzal" and who, on admission, displayed signs of "basal atelectasis," going on to broncho-pneumonia, and associated with both cerebral and spinal symptoms. I have been naïvely asked whether such cases are to be diagnosed as influenza, as pneumonia, as poliomyelitis, or as encephalitis lethargica!

The solution of both problems—that of atelectasis in poliomyelitis and encephalitis, and that of atelectasis going on to "pneumonia" in influenza—was, I believe, indicated by Graves 80 or 90 years ago, when he recognised the "nervous" element in influenza: said that in 1837 most influenzal patients died with "paralysis of the lungs"; and suggested that the peculiarities of many influenzal pulmonary complications were due to "paralysis of the eighth pair of nerves." Many have since thought as much: indeed, Peyton Blakiston and Althaus, amongst many others, founded their theory of the nervous pathology of influenza on similar considerations. And with each successive epidemic of influenza some clinician or other announces anew that, during the early stages of influenzal pneumonia, there is a curious absence of the ordinary physical signs heard over the bases of the lungs. This is why "influenzal pneumonia" so often takes the doctor unawares; and I am in the habit of teaching that, when in any case thought to be influenzal there is dyspnœa of a kind and yet "no physical signs" or, indeed, an unusual silence, then pneumonia is likely to "develop." At any rate, the occurrence of this atelectasis, in influenza with nervous symptoms, in encephalitis, and in poliomyelitis, is one more link in the proof of the incontestable and fundamental unity (as Micheli calls it) between the cases at present sorted out under these various nosological labels.

But this atelectasis has yet another interest. If we recognise it, as I think we must, as paralytic, we reach a new conception in respect of the pathology of certain pneumonias, and perhaps of much more. Instead of regarding certain pneumonias as attacks of an infective invader, we come to envisage, in certain cases, *first* an atelectasis that, being paralytic, is accompanied or followed by certain vasomotor changes, and, *secondly*, a rise into activity, a seizing of opportunity, of and by organisms till then pullulating harmlessly in the vicinity. This notion, as I tried to show in 1920,[2] links up with Mr. Benians's idea of the protective value of the mucoid layer that covers the mucous membranes. Once this mucoid layer becomes inefficient, the gates are opened for invasion by what otherwise are mere saprophytes or parasites.

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[1] Influenza. Essays by several authors. Heinemann. 1922. P. 362.

Finally, it may be pointed out that not only in encephalitis lethargica, but in poliomyelitis (if we must maintain a distinction that every day is becoming less definable) there are often enough "visceral paralyses" other than that studied by Dr. Regan. There is the obstipation, and sometimes dilatation of the stomach; and there is the bladder palsy, too. There are, moreover, the vasomotor, pilomotor, sudoral, and salivary derangements that can hardly be ascribed to anything but "nervous" influences. Unfortunately, neurological interest seems too often exhausted when the motor and sensory and mental changes or phenomena correlated with the cerebro-spinal nervous system have been investigated. Yet, in influenza, in encephalitis lethargica, and in poliomyelitis, there is a wealth of clinical phenomena that can only be rationalised by reference to the sympathetic and para-sympathetic systems. And this further community tends to outweigh many superficial or arbitrary distinctions, and to give point to Dr. A. J. Brock's acute questionings.[3] These may be summarised thus: *How* are we to distinguish between influenza with cerebral or spinal complications, and poliomyelitis or encephalitis consequent on an influenza that, we are told, is *not* an influenza?

I am, Sir, yours faithfully,

F. G. CROOKSHANK.

Wimpole-street, W., Dec. 12th, 1924.

SUCTION IN SURGERY.

To the Editor of THE LANCET.

SIR,—I have been much interested in the suction apparatus devised by Mr. Lake and also in Mr. Whiteford's letter. My own interest in the matter had previously been aroused during a recent visit to the United States of America. During a stay at Cushing's clinic at Boston I saw suction in daily use and formed a high opinion of its advantages in neurological surgery. Heavy sponging is here out of the question owing to the thinness of the vessel walls and the vulnerability of the cerebral tissues. When a large vessel gives way in the depths of a wound in other regions, especially in the limbs, the bleeding can, as a rule, comfortably be controlled by a large swab pressed on the bleeding point and held there for some time. It is disastrous to keep lifting the swab up to see how things are getting on. In time the vessel will contract and will become more easy to seize. In the skull no such manœuvre is feasible unless the operation is extradural (as in section of the trigeminal root). If, on the other hand, a sucker is made use of, the blood may be removed practically as fast as it escapes and the wound kept dry enough for a clamp, a ligature, or a silver-clip to be early and rapidly applied; irrigation may be used along with suction if desired. The same technique I saw in use at the New York Neurological Institute and no doubt is used at many other centres. Suction is obtained by water power from a tap in the theatre, or preferably an adjoining room, with a long tube, ordinary bent glass or brass tubing as nozzles, and a glass flask to collect blood. This is the apparatus that I have personally been using. Mr. Lake's invention has the merit of portability, but in a set operating theatre the simple water Sprengel's pump has everything to recommend it. Blood may be collected (in a clean operation) and after straining may be injected back into the patient. Dr. Loyal Davis, working in Cushing's clinic, has a paper in the press on this subject. It is an advantage to use a sodium citrate solution to prevent clotting in the tube, and to dip the nozzle into this every now and again.

Only those who take a particular pride in operative technique will be especially attracted to the method. That is to say, operations can be quite well done without the aid of suction, and have been so done these many years. But no one who has seen an apparatus in use, or who has had experience with it, will doubt that very considerable advantages may be derived from it. In the mouth its uses are obvious, in the abdomen hardly less so. During operations on the biliary tract the sucker helps to keep the wound dry and to limit soiling. During intestinal resections and anastomoses one has in a suction apparatus a ready means of emptying the clamped portions of bowel, provided that the bowel contents are not too inspissated. It is not very useful in dealing with the colon or in chronic obstructions where the fæces are not sufficiently fluid to be drawn away. It may again be found useful in operations high up on the stomach and in gastro-enterostomy without clamps. In appendicular abscesses it is of the very greatest value, particularly when these are of large size. Everyone has opened an appendix abscess of such dimensions that the pus has escaped from its walled-in cavity rather more quickly than it could be mopped up or made to escape through the parietal incision. No doubt a number of unsatisfactory results after the drainage of such abscesses can be traced to the unavoidable soiling that then occurs. My practice now is to make a small incision into the cavity and insert the nozzle of the suction apparatus, so aspirating as much of the pus as possible with the abdominal wound held wide open and packed off as usual, before a finger is inserted to search for the appendix.

Experience alone can teach the precise field of usefulness for this addition to our resources. It is not a panacea, and may at times be found disappointing, but of its essential efficacy and value *to the patient* I am convinced.

I am, Sir, yours faithfully,

Manchester, Dec. 13th, 1924. GEOFFREY JEFFERSON.

MEDICAL INSPECTION OF LONDON SCHOOL CHILDREN: INCREASED MEDICAL STAFF.—Children attending public elementary schools are medically inspected (1) on entry, (2) at or about the age of 8 years, and (3) at or about the age of 12 years. While the day continuation schools were open the children were also examined at the time of leaving the elementary schools, when the choice of employment was specially considered. This fourth examination was regarded as the equivalent of an "entrance examination" to the day continuation schools and was abandoned when the compulsory schools were closed in 1922. Many representations had been made to the Education Committee of the Council that the fourth examination served a most useful purpose in revealing defects which ought to be treated before the children left school. Provision has been made in the "three-year educational programme" recently adopted by the Council for systematic examination of children immediately prior to their leaving school, in order that advice may be given on questions relating to employment and coöperation with the factory surgeon. The Education Committee now propose that the fourth examination, which will involve the inspection of about 60,000 additional children annually, shall be resumed as from April 1st, 1925, and that the question shall be reconsidered if and when the proposed Factories Bill becomes law and contains provision for the medical examination of young persons employed in factories. Extra staff of assistant medical officers and nurses will be necessary, and the additional expenditure involved will be £5600 for the first year, and ultimately £6600 annually. The Council adopted last week a series of recommendations giving effect to these proposals.

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[2] Brit. Med. Jour., Oct. 23rd, 1920.
[3] Brit. Med. Jour., Nov. 29th, 1924.

Medical News.

UNIVERSITY OF OXFORD.—In the recent examinations for the degrees of Bachelor of Medicine and Bachelor of Surgery the following candidates passed the Final Examination in the subjects named :—

Materia Medica and Pharmacology.—D. A. Abernethy, Balliol ; F. J. Bach, New Coll. ; A. V. Clemmey, Christ Church ; C. R. Croft, Trinity ; T. L. Davies, University ; J. H. Ferguson, Queen's ; E. L. Fothergill, Keble ; W. H. Hudson, Brasenose ; T. M. Ling, New Coll. ; D. Lurie, Lincoln ; S. Segal, Jesus ; C. W. Simpson, Balliol ; A. G. Wilson, Brasenose ; E. M. Wright, New Coll. ; Grace Batten, Lady Margaret Hall ; Rosaling V. Carruthers, home student ; Margaret A. L. Herbertson, home student ; Olive H. Lister, St. Hugh's ; and Irene M. Titcomb, home student.

Pathology.—D. A. Abernethy, Balliol ; F. J. Bach and R. H. B. Bettington, New Coll. ; W. B. Boone, Lincoln ; C. Charleson, Queen's ; J. C. K. Chilcott, Exeter ; J. L. Cox, Brasenose ; G. H. Crisp, Magdalen ; C. R. Croft, Trinity ; J. A. Eyres, Lincoln ; C. W. Fleming, Trinity ; J. N. C. Ford, Hertford ; A. T. Fripp and K. A. Hamilton, Christ Church ; S. Harris, Jesus ; H. O. Hopkins, Magdalen ; S. Howard and J. S. Jerome, Christ Church ; T. M. Ling, New Coll. ; C. W. Mackenzie, University ; R. G. Mathews, Queen's ; E. L. Newell, Jesus ; W. F. Howson Ray, University ; F. J. Sale, Christ Church ; J. W. de W. G. Thornton, Magdalen ; G. P. Thorold, Trinity ; O. R. Tisdall, Hertford ; E. C. Whitehall-Cooke, Queen's ; A. L. Wilkinson, Trinity ; D. O. Williams, Jesus ; and Alice D. K. Peters, St. Hugh's.

Forensic Medicine and Public Health.—C. E. G. Beveridge, New Coll ; C. P. Blacker, Balliol ; H. A. Byworth, Oriel ; T. A. J. M. Dodd, Queen's ; A. T. Fripp, Christ Church ; H. E. Harding, Oriel ; J. S. Jerome, Christ Church ; M. J. W. Minshull, Keble ; E. L. Newell, Jesus ; J. de la M. Savage, Wadham ; H. N. Stokoe, Pembroke ; R. A. Walsh, Magdalen ; D. O. Williams, Jesus ; Mathilde E. F. Bugnion, Somerville ; and Ella J. Cockram, home student.

Medicine, Surgery, and Midwifery.—M. McC. Baird, New Coll. ; R. J. Brocklehurst, University ; T. A. J. M. Dodd, Queen's ; H. E. Harding, Oriel ; J. R. B. Hern, New Coll. ; T. B. Hodgson, Queen's ; P. H. Martin, New Coll. ; J. D. Mills, Lincoln ; M. J. W. Minshull, Keble ; A. W. L. Row, Brasenose, H. N. Stokoe, Pembroke ; B. E. Tompson, Brasenose ; and Mathilde E. F. Bugnion, Somerville.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council held on Dec. 11th, Sir John Bland-Sutton, President, in the chair, diplomas of Fellow were conferred upon 25 candidates ; 105 candidates presented themselves for examination, of whom 27 passed (including three candidates who have not attained the requisite age of 25 years—Max A. Lautre, David Levi, and Clement Sturton). The following are the names and medical schools of the successful candidates :—

Haridas J. Bhatia, Bombay and London ; John T. Blackburn, Leeds and London ; Anthony Blackstock, King's Coll. ; Charles J. O. Brown, Melbourne and London ; Norman L. Capener and Frederick C. W. Capps, St. Bart.'s ; Edwin T. Cato, Melbourne and Guy's ; Daryll C. Corry, Univ. Coll. ; John Dreadon, Otago and London ; William S. D. Elder, St Andrew's and St. George's ; *Arthur J. Gardham, Middlesex and Univ. Coll. ; Charles M. Greenslade, Otago and St. Bart.'s ; Raymond V. Hennessy, Melbourne and St. Mary's ; Arthur R. Jones, Univ. Coll. ; Alan E. Lee, Melbourne ; George D. F. McFadden, Belfast and London ; B. S. Nat, St. Andrew's and Guy's ; Charles H. Osborn, Melbourne and London ; David H. Patey, Middlesex ; Alexander E, Roche, Cambridge and St. Bart.'s ; Michael J. Smyth, Dublin and St. Bart's ; Hubert W. Symons, Leeds and London ; Angus H. Whyte, Durham and London ; Frederick W. Widgery, Guy's ; and Bernard W. Williams, Oxford and St. Thomas's

* Passed examination May, 1924, now attained 25 years of age.

Diplomas of Member were conferred upon the following who have passed the requisite examinations and have complied with the by-laws :—

Margaret I. B. Cowling and Mary H. Elmitt, Royal Free ; and Cyril J. Polson, Birmingham.

Licences to practise dentistry were conferred upon the following :—

Beryl L. Allen, Royal Dental ; G. H. H. Ames, Univ. Coll. ; E. J. Andreka, Guy's ; F. G. Arnold, C. Barton, and C. S. Berrington-Stoner, Royal Dental ; N. J. Boulton, W. G. Bradbeer, and R. G. C. Broadbridge, Guy's ; B. A. Butcher and C. Buxton, Royal Dental ; H. B. M. Cahill and A. E. Cave, Guy's ; B. Chadwick, Manchester ; R. C. Churchyard, Royal Dental ; A. E. J. Cooper, London ; E. Crocker, Guy's ; Mary M. M. Davies, H. Davis-Marks, D. J. De Lima, and M. N. Denney, Royal Dental ; R. L. Denny, Guy's ; B. C. Dickinson, Univ. Coll. ; G. W. Dibble and P. Droomer, Guy's ; L. E. Edwards, W. Field, and Kate M. Fry, Royal Dental ; J. Fullwood, Birmingham ; H. W. Fynn, Royal Dental ; B. T. Gilders, London ; J. H. Gillman, Royal Dental ; S. W. Goodson and M. B. Goolding, Guy's ; V. D. Gross, Royal Dental ; R. R. Haddow, Guy's ; M. L. Harrington, Birmingham ; E. M. Harries, Guy's ; F. N. Harrison and J. P. Harrison, London ; Frances D. Harsant, Royal Dental ; M. C. Hart and J. P. Hartman, Guy's ; L. B. Hickman, Royal Dental ; H. M. Hill, Birmingham ; E. G. Hockley, Royal Dental ; N. M. Holloway, Guy's ; N. Howson, Durham ; J. Hull, Guy's ; H. A. Jenner, Royal Dental ; W. R. Keizer, London ; A. C. Kempe and H. B. Kidner, Guy's ; Jessie D. Latham, Royal Dental ; W. H. C. Lean, Guy's ; G. H. Leatherman, Harvard and Guy's ; R. L. Lee, Royal Dental ; I. Lipschitz, Guy's ; Beatrice Love, Manchester ; F. T. Lowein, A. C. Luck, and S. A. McLaren, Guy's ; L. A. T. McLean, London ; F. A. Markham, Durham, E. H. Marshall, Guy's ; G. R. Mears, London ; W. H. Meissner and W. Nicholls, Guy's ; D. H. Oliver, Durham ; E. G. Parsons, Guy's ; H. J. Pearson, Liverpool ; A. Perkins, Guy's ; F. W. Pickard, Durham ; L. G. Pickett, H. M. Pimm, F. St. J. Powley, and T. N. L. Price, Guy's ; F. H. Richardson, Leeds ; O. Sidi and H. E. Spencer-Payne, Guy's ; D. W. N. Squires and M. Stein, London ; Ellen M. Still and J. L. C. Stone, Royal Dental ; G. F. Swales, Guy's ; Maude M. Taylor and Catherine M. Thomas, Royal Dental ; R. A. Tran and W. F. C. Tucker, Guy's ; Sarah M. Twort, Univ. Coll. ; G. B. Vachha, Royal Dental ; L. Weinberg, Guy's ; H. J. Wells, London ; H. F. Wiles, Royal Dental ; W. J. Willey, London ; G. V. L. Williams, Guy's ; A. G. P. Wills, RoyalDental ; and A. C. Wilson, London.

At an ordinary meeting held recently of the Council of the College, Sir John Bland-Sutton, President, in the chair, Mr. Herbert Stringfellow Pendlebury, St. George's Hospital, was re-elected a member of the Court of Examiners. The following resolution, moved by Mr. W. E. A. Worley and seconded by Mr. M. I. Finucane, was carried with one dissentient :—

> That this thirty-sixth annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College ; moreover this meeting requests that the President shall hereupon reply in detail to the two resolutions passed at the last annual meeting, and that he shall also state whether his Council has seriously considered any means whatever whereby the collective views of Members of the College may be ascertained on matters affecting their interests as Members.

In reply, the President stated that he had listened carefully to the speeches made in support of the resolution, but he failed to notice any new argument advanced beyond those set forth at previous meetings. The resolutions had been answered by his immediate predecessors in the office of President, and his own reply last year was set out in the annual report, which was sent to every member who applied for it.

UNIVERSITY OF EDINBURGH.—At the recent Final Examination for the degrees in Medicine and Surgery the following candidates were successful :—

Harry Addison, William Aitchison, San Hla Aung, Basil N. V. Bailey, Evelyne E. Baird, Mary E. Barr, George Beveridge, Albert E. Blackley, Douglas W. N. Blackmore, John F. Bland, Arthur F. Brown, Alistair J. Cameron, Lachlan G. Campbell, Victor F. T. Chan, Matthew Clouts, Robert M. Condie, John G. Cormie, Douglas J. M'Auliffe Corner, Theodore A. Crawford, Glyn A. Davies, John Douglas, Lillian R. Duffy, James N. Dugdale, Nigel Duguid, *David S. Fairweather, Archibald L. Ferguson, Robert C. Forrester, Dessedeirous Fourie, Edward A. H. Fox, Alexander Fraser, Alexander M'Leod Fraser, Daniel L. Frew, Thomas D. Glaister, James Gray, *Charles B. Grieve, David Gunn, Donald B. Guyer, William Henry, Anna M. Herdman, Chee Wing Ho, Robert Hutchinson, Benjamin James, John W. Keighley, William D. Kiernander, George M. Lamb, Alec Lazarow, Kenneth M. M'Cracken, Hugh L. Mackintosh, Angus Macrae, John C. M'Vittie, Mark S. Malone, Alexander L. Masterton, Victor W. Maxwell, Margaret M. Meikle, James F. Menzies, Robert H. Mumford, Lilian M. S. Murray (*née* Macdonald), Wallace Nelson, Richard Norton, Robert C. Ogg, Arthur Owen, William Parker, Frank S. Paterson, Alec L. Phimister, Charles K. Robertson, James A. Robertson, Elsie T. D. Robson, Robert J. Rodger, Christina B. Ross, Richard Ross, Neil D. Sanderson, Hillel Schulgasser, George Simpson, James K. Slater, Milan Sokolovitch, Malcolm E. J. Stalker, William E. Stober, Agnes E. Stothard, Graham S. Strachan, James C. Tainsh, Nicholas J. Terblanche, Alexander G. Thomson, Robert M. Thomson, Paul R. Tingley, Dorothy M. Wilkie, Bertram O. Wilkin, Joseph Wilkinson, Ada M. Woods, and Morden H. Wright.

* With distinction.

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations held recently the following candidates were successful :—

FINAL MEDICAL EXAMINATION.

Part II., Medicine.—*Robert Warnock, *Alan J. Mooney, *Louis MacS. Bell, *Thomas W. May, *Isidore Rosin, John N. Atkinson, Morris Sless, Samuel M'Dermott, Thomas G. B. Crawford, Eric T. S. Rudd, Noel G. M'Auliffe, William A. Dickson, Robert E. Steen, Agnes L. Kelly, Samuel E. Magowan, Mark J. Bradlaw, John F. Wilde, Louis P. Sayers, Sylvia B. Wigoder, Herbert Birney, Robert H. M'Keag, Paul D. Piel, Dorothy I. Henry, Raymond J. G. Hyde, John G. Maguire, Cecil R. Moore, George D. Rankin, Israel Strasburg, William H. Maguire, Edward A. Bennet, Lucy E. R. Pigott, Edmund J. Walsh, Carmichael Wilson, Angel V. B. Crawford, and John M. Johnston.

Surgery.—Robert F. J. Henry, William A. Dickson, Thomas W. May, William D. Speedy, Paul N. H. Labuschagne, Robert H. M'Keag, Louis P. Sayers, John R. Bradshaw, William H. Maguire, Wilfred H. Anderson, Morris Sless, John L. Levingston, Dorothy J. Booth, Paul D. Piel, Robert W. Harte, George D. Rankin, Gordon P. Bamford, George F. Gillespie, Alfred J. Head, Robert G. F. Thompson, Edward C. Dudgeon, James L. Marshall, Jerreth Horwich, Howard St. G. M'Kenny, and John Cussen.

Midwifery.—*Augusta M. Young, *Hope Trant, *Joseph R. Gregory, *O'Donel T. D. Browne, Philip Coleman, James Dick, William R. G. Gallagher, William P. E. M'Intyre, Edward Harvey, Charles F. D. M'Caldin, Robert A. Heatley, James E. M'Cauley, Edmund J. Walsh, Carol R. J. Boland, James Craig, Gladys M. A. Lowry, Alexander D. M'Lean, Mary S. Miller, Harris Tomkin, William G. S. Maxwell, George A. Miller, William J. A. M'Mahon, Joseph V. Pincus, Dorothy A. M'Entire, Grace J. Rankin, Gordon P. Bamford, Douglas Bluett, James J. Cusack, Henry M. Nevin, James C. C. Boyle, William C. Somerville-Large, Harry Nelson, Kathleen M. Ball, Charles H. Wilson, Denis J. Cussen, Solomon Gurevitch, Norah M. Smith, and Margaret E. Pedlow.

* Passed on high marks.

FINAL DENTAL EXAMINATION.

Edward A. Kieran, Robert G. Torrens, and Olive G. Kerr.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS.

William T. Noonan and Carriappa Appayya Nadicarianda.

UNIVERSITY OF LONDON: COMPLIMENTARY DINNER.—The Council of the University of London Graduates' Association arranged a dinner at the Hotel Victoria, Northumberland-avenue, on Dec. 15th, to celebrate Dr. E. G. Graham Little's return as Member of Parliament for the University and to meet Prof. S. L. Loney, just elected Chairman of Convocation, and Sir Josiah Stamp, elected Member of the Senate. The chair was taken by Sir William Collins, who presented to Dr. Little an illuminated souvenir to the following effect :—

> Dr. G. Graham Little, M.D., F.R.C.P. Lond., M.R.C.S. Eng., in commemoration of his election as Member of Parliament for the University of London, irrespective of party politics and in vindication of the policy of the University of London Graduates' Association for the maintenance and development alike of the teaching work of the University and of its open system of examination without intervention of external agencies unacquainted with its history and purpose. Signed : W. J. Collins, Past President ; John A. Douglas, Chairman of Executive Committee ; T. Hynes, Hon. Secretary.

Dr. Little's health was proposed by Canon J. A. Douglas, Chairman of the Association's Parliamentary Election Committee. The toast of "The Association," proposed by Sir William Collins, its founder, was responded to by Prof. Loney and Sir Josiah Stamp. The Rev. Dr. H. B. Workman proposed "The Colleges and Schools of the University," to which response was made by Mr. E. Barker, Principal of King's College, and Dr. G. Senter, Principal of Birkbeck College. Mr. Hynes proposed "The Guests," Sir StClair Thomson and Sir James Yoxall responding. Finally, Sir William Willcox proposed "The Chairman." Among the invited guests not already mentioned were Prof. Gibson Atkins, Miss Higgins (Principal of the Royal Holloway College), the Greek Minister, the Dean of Windsor, Mr. G. Murray Brumwell, Sir Arbuthnot Lane, Sir Howard Frank, Sir Israel Gollancz, and many others of academic distinction. The common message of the speakers was to the effect that the University of London is no mere examining board, no "arid abstraction," as it has been called, but a living and moving thing which gives to many men and women the only chance they have in a lifetime of obtaining advanced instruction and opportunity of culture. Those present desired, in harmony with the policy of the Association, to see the necessary reform wrought from within, producing ordered and peaceful progress. Principal Barker associated himself and the heads of other University colleges with these aims.

MEDICO-LEGAL SOCIETY.—The annual dinner of this society was held at the Holborn Restaurant, London, on Dec. 12th, the President, Lord Justice Atkin, in the chair. The toast of "Law and Medicine" was proposed by Sir William J. Collins, who said that the 17 volumes of the transactions of the society, representing the 23 years of the society's existence, showed what a large common territory there was between law and medicine to be usefully explored. Forensic medicine, he thought, had been rather neglected in the medical schools. It was hoped at the time that a great central school of medical jurisprudence might be founded in London, arising out of some of the Royal Commissions on London University, but the hope had not materialised. Sir Humphry Rolleston, President of the Royal College of Physicians of London, in reply, said that the society might discuss which, of law or medicine, was the senior profession ; he thought medicine was the second oldest profession in the world. Mr. T. R. Hughes, K.C., President of the General Council of the Bar, also responded. The Medico-Legal Society was proposed by Mr. Justice Eve. He said that it was certainly to be hoped that out of the collective wisdom of the society there would emerge a satisfactory solution of the divergent views of medicine and law upon the subject of the criminal responsibility of the mentally degenerate, because nobody could be satisfied with the position as it now existed. The Chairman, responding, referred to papers which had been read on Arsenical Poisoning, Abortion, and Proof of Childbirth, and remarked that those three subjects were of the greatest importance in the administration of justice. Anybody in the profession of a doctor, a coroner, or an advocate, he said, was not properly and adequately equipped for his task unless he had made himself acquainted with the contents of those three papers. Lord Riddell proposed "The Guests," and Sir Claude Schuster and Mr. W. H. Norton, President of the Law Society, responded. Among those present were the Master of the Apothecaries' Society, Mr. Lyndon Moore (President, Coroners' Society), Dr. L. A. Weatherly, Prof. Theo. Hyslop, Dr. A. Chadwick, Mr. W. .E. Weil, Prof. Louise McIlroy, Mr. John Webster, Dr. Roche Lynch, Dr. Godfrey Carter, Dr. T. Wilson Parry, Dr. Robert H. Cole, Dr. D. A. Cole, Sir H. C. Bennett, Dr. Agnes Savill, Sir Walter Schroder (treasurer), Dr. A. S. Woodwark, Mr. W. A. Spratling, Mr. H. B. Wells, Mr. Roland Mitchell, Dr. F. J. Waldo, Mr. Francis Agar, Mr. W. C. Williams, Dr. G. Pernet, and Mr. Ernest Goddard (secretary).

BRITISH DENTAL HOSPITAL DINNER.—The annual dinner of the hospital (formerly British Dentists' Hospital) was held at the Langham Hotel on Dec. 6th, Sir Harry Baldwin, the President, in the chair. After the usual loyal toasts and a telegram from Queen Alexandra had been read, Dr. G. Q. Lennane referred to the further extension of the work in Battersea, and said the hospital had now proved the value of its existence.

QUEEN'S UNIVERSITY (BELFAST) CLUB, LONDON.—A dance will be held by the club in the Hotel Cecil on Thursday, Jan. 15th, 1925, at 9 P.M. Tickets (to include buffet supper) will be, for members, 12*s.* 6*d.*, and members' guests, ladies, 10*s.* 6*d.* ; men, 11*s.* 6*d.* Application for tickets, to be accompanied by remittance, should be made to the hon. treasurer, 17, Wimpole-street, W.

BICENTENARY OF GUY'S HOSPITAL.—A solemn service in commemoration of the founder and other benefactors of the hospital will be held in the Cathedral Church of St. Saviour, Southwark, on Tuesday, Jan. 6th, at 12 noon. H.R.H. the Prince of Wales, President of the hospital, has signified his intention to be present.

TUBERCULOSIS SOCIETY.—Owing to Dr. F. G. Chandler's illness the meeting which was arranged for to-day (Friday) has been postponed. The next meeting of the society will, therefore, be held on Friday, Jan. 16th, when Dr. Anthony Feiling will speak on Tuberculosis of the Central Nervous System.

MIDDLESEX HOSPITAL REBUILDING SCHEME.—At a meeting of the court of governors at the Middlesex Hospital on Dec. 11th it was decided to proceed with a rebuilding policy which will probably cost £500,000. The decision has been rendered necessary by the condition of the buildings as disclosed by the architect, and it is considered more economical to rebuild than to repair. At the same meeting Sir John Bland-Sutton was elected vice-president of the hospital.

THE AUGUSTUS AND ALICE WALLER MEMORIAL.—The movement to organise a memorial to the late Dr. and Mrs. Augustus D. Waller has received considerable support. The memorial is established in recognition of Dr. and Mrs. Waller's life-long devotion to research and of the sympathetic help they always gave to other workers. The sum of £2000 has been subscribed at the London (Royal Free Hospital) School of Medicine for Women, and a trust deed has been drawn up embodying the resolutions of the final meeting of the committee and subscribers held on July 17th, 1924. The money has been handed over to the council of the medical school who are investing it as a capital sum, and who will apply the interest for purposes of scientific research. A sum of about £105 has been subscribed also for a Waller research room at St. Mary's Hospital.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The tenth meeting of the Commission was held at the Home Office on Dec. 11th, when the examination of the representatives of the Ancient Order of Foresters, Mr. W. J. Torrance, High Chief Ranger, and Mr. Stanley Duff, secretary, was continued, the following subjects being dealt with : Extension of the scope of medical benefit to cover specialist and consultant services, the provision of dental treatment as a normal benefit, restriction of the amounts supplied to cash additional benefits, the position of the deposit contributors. Thereafter the examination of the representatives of the National Conference of Industrial Assurance Approved Societies was begun. The oral evidence given at the meeting of Nov. 27th is on sale in proof form (1*s.* 6*d.*) at H.M. Stationery Office.

PEOPLE'S LEAGUE OF HEALTH.—A benefit performance in aid of this League will be given at the Palladium Theatre (by permission of the National Sunday League) on Jan. 18th, 1925, at 3 P.M.

POST-GRADUATE STUDY IN VIENNA.—The Vienna Medical Faculty has arranged an extensive series of post-graduate courses in various medical subjects, consisting of lectures and clinical demonstrations, which are held every month during the academic year. Special courses are also held in English. Full information may be obtained on application to the Kursbüro, Schlösselgasse 22, Vienna VIII.

UNIVERSITY OF LEEDS.—At the graduation ceremony held on Tuesday, Dec. 16th, during the course of the jubilee celebrations of the University, the honorary degree of Doctor of Laws was conferred on Sir Berkeley G. A. Moynihan, professor of surgery in the University. The honorary degree of Doctor of Science was conferred, in absentia, on Emeritus Prof. John Edwin Eddison, formerly professor of medicine in the University.

UNIVERSITY OF MANCHESTER.—At a recent meeting of the Council of the University it was announced that Dr. A. E. Barclay, Dr. B. A. McSwiney, and Dr. B. J. Ryrie had been elected members of the Board of the Faculty of Medicine.

MANCHESTER'S MILK-SUPPLY JOINT COMMITTEE.—At a joint meeting held last week in Manchester of the Manchester Public Health Committee, the Lancashire, Derbyshire, Cheshire, and Staffordshire branches of the Farmers' Union, the Manchester and Salford Milk Dealers' Association, and the Lancashire Milk-recording Society, the movement to secure a cleaner and better milk-supply for Manchester was carried a step farther. A joint committee consisting of two members from each of the four county branches of the Farmers' Union, two from the Milk Dealers' Association, one from each of the Milk-recording Societies of Lancashire, Cheshire, and Derbyshire, and representatives of the Public Health Committee was appointed. It was agreed that, whilst repressive measures, as expressed in ordinary legal proceedings, may have a useful effect, the best results can be obtained by willing coöperation. The Farmers' and Milk Dealers' organisation have expressed their willingness to further the scheme by every means in their power, particularly by influencing their members wherever it is necessary, and by advising and otherwise helping them to improve the conditions of milk production.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At the annual meeting of the College held on Dec. 4th Dr. George Lovell Gulland was re-elected President for the ensuing year, and the following were elected members of Council: Sir Robert Philip, Dr. R. A. Fleming, Dr. G. M. Robertson, Dr. Claude B. Ker, and Dr. Edwin Matthew. The other office-bearers are as follows: Vice-President, Dr. J. C. Dunlop; treasurer, Sir Norman Walker; hon. librarian, Dr. Robert Thin; curator of laboratory, Sir Robert Philip; secretary, Dr. J. S. Fowler.

ROYAL INFIRMARY, EDINBURGH: NEW RADIOLOGICAL DEPARTMENT.—The new radiological department, the plans of which have recently been passed by the Dean of Guild for the City, has been designed to furnish adequate provision for the increasing demands which modern medicine and surgery make in the diagnosis and treatment of disease by physical methods. The building, of reinforced concrete, faced with stone in keeping with the rest of the infirmary buildings, will consist of two floors and a large well-lit basement. The building itself will not be of a height or in a position to overshadow any ward, and will be easily accessible from any part of the hospital. The ground floor will be devoted to radiography, and will comprise (1) a radiographic room for X ray examination of bones and joints; (2) a screening room specially adapted for investigation of gastric and intestinal function; (3) a screening room for the examination of the heart and lungs, and rooms for superficial and intensive X ray treatment. For the latter a special apparatus is to be installed, the most powerful yet designed, working at a voltage of 250,000, and it will be used mainly for treatment of cancer. In addition there are provided rooms for developing films and prints, a laboratory for research work, a large demonstration room for students, rooms in connexion with the administration of the department, together with large waiting and dressing rooms for the patients. In all radiographic rooms the walls will be made of X ray proof material, affording ample protection for both patients and workers. On the first floor provision has been made for massage and remedial exercises, in addition to electrical, radium, and artificial sunlight methods of treatment. At present these departments of treatment in the infirmary are hampered by lack of space. The basement of the building will house workshops and stores. The housing of the electric generators and motors to supply the electric current throughout the department has been specially arranged so that no noise will reach the patients. This is a new feature in an X ray department. Steam-heating will be adopted and ventilation secured by a system of mechanical extraction, which will ensure a plentiful supply of fresh air in every room. The new radiological department when completed will be the largest and most completely equipped in the country, and will meet the requirements of the infirmary for many years to come. It is estimated that the building will cost £40,000, and that the electrical and other equipment will involve an expenditure of a further sum of £12,000.

BRISTOL MEDICAL DINNER.—A dinner was held on Dec. 11th at the Grand Hotel, Bristol. Mr. W. E. Miles was the guest of the evening and Dr. A. L. Flemming presided over a company numbering some 150. The President proposed the toast of "The King" and Dr. Charles Corfield then proposed the toast of "The Guest of the Evening." He spoke of Mr. Miles's position in the front rank among those surgeons who specialise in the lower alimentary tract and of his work at the Cancer and Gordon Hospitals. Mr. Miles proposed the toast of "The Bristol Medical School" and referred to its long rôle of distinguished men. Bristol with its great traditions had nothing to fear from the future. Surgeon-Commander W. Blatchford responded for the Medical School and referred to the improvement in teaching and to the camaraderie now existing between teachers and taught in contrast with the formality of his student days. Prof. Buckmaster proposed the toast of "The President" in a humorous vein, and Dr. Flemming replied in an amusing speech. A reception was afterwards held at the University by the wives of the medical staff.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 10TH.

Debate on the Address.

THE debate on the Address in reply to the Speech from the Throne was resumed.

Sir H. SLESSER (who was Solicitor-General in the Labour Government, but who held the office without a seat in the House of Commons, which he entered for the first time at the recent General Election) said the Labour Party read in the King's Speech the desire for unity and for many things which they appreciated. But the opposite was present, too. It was present in the insistence on what they called economy, which meant relieving the taxation of certain people and failure to use the money which ought to have been derived from that taxation for social purposes. That ideal the Labour Party entirely denounced. They used economy in the Greek sense; they were all economists, but if by economy it was meant that his constituents were to continue to live in the houses in which they lived to-day; were to continue to have the medical treatment which they received to-day, and the lack of proper educational facilities was to go on in order that some wealthy gentlemen might pay 6*d.* less on super tax—if that was the Conservative programme they (the Labour party) were inexorably opposed to anything of the sort.

Major COHEN, after expressing satisfaction at seeing Major Tryon once more in the position of Minister of Pensions, said that the final awards to pensioners came into force on Jan. 1st, 1922, and between that date and the end of September, 1924, 434,907 final awards were made. Only 182,000 resulted in the granting of permanent pensions, which meant that in the remainder, 253,000 cases, the men had all been awarded pensions which were under 20 per cent. After being given allowances for a certain limited number of weeks they were wiped off the Ministry's books. He did not think that was a satisfactory state of things. If the Ministry of Pensions medical board thought a pensioner was likely to remain in his condition for the rest of his life it was not likely that they were so wrong that he would get worse within the first 12 months. The appeal, however, had to be put in in the first 12 months. It was afterwards that the man got worse and therefore the right of appeal was not worth much. Some time ago in Swansea the chief medical men in the town, coöperating with the British Legion, discussed the eligibility of these men to put in another appeal. These medical men—the most eminent in Swansea—were astounded by the fact that so many men came before them who were obviously suffering either from wounds or disease contracted during the war directly traceable to the war and who were yet not in receipt of a pension. They decided to go further into the question. An independent committee of medical men in Swansea was formed to consider the question and they came to the conclusion that there were certain disabilities which it was impossible for any medical man to say definitely would not alter. They specified the following: Organic diseases of the heart, chronic pulmonary diseases, rheumatism, gunshot wounds, and diseases of the joints. They gave it definitely as their opinion that men suffering from these diseases were more likely to get worse than better. Therefore, to say definitely that those men should be in receipt of a fixed pension would be unfair and unjust and not really what the country desired. Circular No. 30, issued in May, 1924, attempted to deal with this problem and on reading it through it at first seemed quite fair, but in reality it was not. He claimed that all final decisions should be under the jurisdiction of an independent tribunal.

THURSDAY, DEC. 11TH.

Ex-Service Men in Lunatic Asylums.

Sir **HERBERT NIELD** asked the Minister of Pensions whether he was aware that a statement had been made by the Ex-Services Welfare Society that 6000 ex-Service men were at present inmates of pauper lunatic asylums and in daily contact with the ordinary inmates of such institutions, most of whom were incurable; that the cost of maintaining these men was on an average 5*s.* 5*d.* per head, and in some cases less than 6*d.* per day per patient, and the average cost of surgery and dispensary treatment 2*d.* per week; and would he give earnest consideration to the matter and frame a scheme under which these men might be removed to more congenial surroundings, where they might have more chance of recovery and receive such treatment as would recognise their right to the greatest measure of comfort, such as would be afforded by segregation, in recognition of their past service.—Major G. C. **TRYON** replied: I am aware of the statement referred to in the first part of the question, and I would add that I deprecate most strongly the term applied to these institutions. Public asylums in this country are carried on at the charge of the county and borough rates and under the control of the county and borough authorities, and the description of them as pauper lunatic asylums on the ground that a proportion of the patients in them are to some extent supported by boards of guardians, is very gravely misleading and needlessly offensive, not only to the relatives of ex-Service men, but to those of the many thousands of civilian patients. Ex-Service men, whose unfortunate mental condition has been found to be due to their war service, or aggravated thereby, and who, therefore, as certified patients are, under the general law of the land, in public asylums, are there on the footing of private patients and the entire cost of their treatment is defrayed by my department. That cost amounts on the average not to the figure stated, but to 25*s.* a week, in addition to which allowances are paid both to the men themselves and to their families. With regard to the latter part of the question, I would point out that the Government made provision in 1923 for separate special accommodation for those cases in which they were medically advised that a chance of recovery or improvement was offered by special treatment in the form of occupational training and instruction. For this purpose, two institutions were opened in which at the present time 415 cases are accommodated. I would add that all cases of ex-Service men in public asylums are under periodical inspection by medical officers of the Ministry in conjunction with those of the Board of Control, and every case that appears at all suitable for treatment in some other class of institution is removed from the asylum.

Time Limit for Pension Appeals.

Lieut.-Colonel Sir **JOSEPH NALL** asked the Minister of Pensions whether he could now announce the abolition or considerable extension of the time limit allowed in which appeals from the Ministry's decision could be made to the Pensions Appeal Tribunal.—Major **TRYON** replied: I fear that I should have no authority to adopt the course suggested because the time limit is laid down by statute. At the same time, I would remind my hon. and gallant friend that an arrangement, whereby cases in which an appellant is shown to have been prevented by some unavoidable cause in making his appeal in the time allowed are put to the tribunal, is in operation.

Minimum Standard of Fat Content.

Mr. **HURD** asked the Minister of Agriculture when he proposed to take steps for the imposition of a legal minimum standard of fat content applicable to both home-produced and imported whole-milk cheese and cream, as recommended by the Linlithgow Committee.—Mr. **WOOD** replied: The extensive taking of samples of various kinds of cheese was considered a necessary preliminary to the consideration of this recommendation. The last of these samples are now being analysed by the Government laboratory, and when a report is received I shall be in a better position to decide what further action, if any, is desirable.

MONDAY, DEC. 15TH.

British Station Hospital Committee in India.

Sir **PHILIP RICHARDSON** asked the Under Secretary of State for India whether any report had been received from India as to giving effect to the recommendations of the British Station Hospital Committee, under the chairmanship of Surgeon-General Sir G. H. Makins, in 1918; and when he expected to take action to improve the standard of comfort and accommodation in the hospitals for British troops in India.—Sir P. **SASSOON** replied: A report has been asked for but has not yet been received. I will inform my hon. friend when it arrives, and perhaps he will allow me to await it before making a statement in reply to the last part of the question.

Indian Medical Service.

Lieut.-Colonel **FREMANTLE** asked the Under Secretary of State for India whether the Government proposed to adopt the recommendations of the Lee Commission on the Superior Civil Services in India as to the abolition of the Indian Medical Service and the provincialisation of civil medical service.—Sir P. **SASSOON** replied: No decision has yet been reached on the recommendations of the Lee Commission as to the organisation of the medical services in India.

Mr. **WARDLAW-MILNE** asked the Under Secretary of State for India whether the official announcement recently made that His Majesty's Government had accepted the substance of the recommendations of the Lee Commission included their acceptance of the proposals regarding the Indian medical services.—Sir P. **SASSOON** replied: The recent announcement does not refer to the Commission's proposals for the reorganisation of the medical services in India, which, as I have just stated, are still under consideration.

Board of Control and Patients' Appeals.

Mr. **GRIFFITHS** asked the Minister of Health if his attention had been drawn to the fact that the Board of Control discovered by careful inquiry and reported that during the one year 1922 at least 31 patients were deprived of their right of appeal to a magistrate through misdemeanour on the part of medical superintendents; and, since this right conferred in Section 8 was the most important legal safeguard in the Lunacy Act, would he cause similar careful inquiry to be made in regard to the number of similar acts of negligence which had occurred in 1923.—Mr. **NEVILLE CHAMBERLAIN** replied: It is now the practice of the Board of Control to make inquiry regarding each individual private patient admitted to an institution without having been seen by a judicial authority. No instance has come to their notice of a failure to comply with the requirements of Section 8 of the Lunacy Act, 1890, during the year 1923.

Naval Surgeons and Non-attributability.

Sir **BERTRAM FALLE** asked the Parliamentary Secretary to the Admiralty if he would say when it was proposed to set up an independent tribunal to whom naval invalided ratings might appeal against the decisions of naval surgeons as to non-attributability or degree of disablement.—Mr. **DAVIDSON** replied: This matter has been very carefully considered and it has been decided not to set up an appeals tribunal for post-war invaliding cases.

Adulterated and Impure Food.

Mr. **CLARRY** asked the Minister of Health if he was now prepared to make a pronouncement with regard to proceedings aimed at regulations for the better protection of the public against the adulteration and selling of impure food. —Sir **KINGSLEY WOOD** (Parliamentary Secretary to the Ministry of Health) replied: The matter is engaging my right hon. friend's attention, and he is considering, in the first instance, the steps necessary to give effect to the principal recommendations of the Departmental Committee which has recently reported.

Board of Control and Patients' Certificates.

Mr. **GRIFFITHS** asked the Minister of Health if he would cause inquiry to be made by the Board of Control into the number of instances among the private patients' certificates sent up to them for scrutiny during the year 1923 in which the patients' own doctor did not certify and no reason was given for his not having been called in; and since, according to Section 31 of the Lunacy Act, this reason was to be deemed a part of the petition, would the Board undertake in future to refuse their endorsement to any document not containing this reason.—Sir **KINGSLEY WOOD** replied: It is the practice of the Board of Control to return all reception documents which do not comply fully with the requirements of Section 31 of the Lunacy Act, 1890, in order that the necessary information may be inserted. There would, therefore, be no purpose in making an inquiry as suggested by the hon. Member.

Tuesday, Dec. 16th.

Women Students at St. Mary's Hospital.

Mr. Benjamin Smith asked the Chancellor of the Exchequer whether any grants had been made by the University Grants Commission to the board of management of St. Mary's Hospital; if so, whether he was aware that this board of management had decided to exclude women students; and whether, before any further grants were made to the hospital, representations would be made to the board of management with regard to this decision.—Mr. Churchill replied: The answer to the first two parts of the question is in the affirmative. As regard the third part I must point out that the admission of students to university institutions is essentially a matter for decision by the academic authorities, with whose autonomy the Government desire to interfere as little as possible, and I see no reason for taking such action as is suggested. There is no evidence that the facilities for the medical education of women in London are inadequate. The London School of Medicine for Women, which receives a substantial grant from the Government, is a large school, which admits only women, and women students are also admitted to the medical schools attached to King's College, University College, Charing Cross, Westminster, and Royal Dental Hospitals.

Pensioners and Pulmonary Tuberculosis.

Mr. Thomas Kennedy asked the Minister of Pensions if he was satisfied that the period of 12 months after discharge allowed as a condition of entitlement to pension for the first-known manifestation of pulmonary tuberculosis was sufficiently long; and if, in cases where there was a doubt as to whether such a disability was due to or aggravated by war service, claimants or their dependants would in future get the benefit of the doubt.—Lieut.-Colonel G. F. Stanley (Parliamentary Secretary to the Ministry of Pensions) replied: The period referred to which was arrived at on the advice of the highest medical authorities was an indication that this disease may remain latent for a considerable time and is merely a definition of the period of time within which the first symptoms of the disease could appear and yet the disease be held to have commenced during the war service. In dealing with claims of compensation in respect of this disease, full weight is, however, always given to evidence indicating that the disease was present at an earlier date, although not diagnosed as such until possibly some considerable time after the period referred to.

Deputy Commissioners of Medical Services.

Colonel Perkins asked the Minister of Pensions the number of deputy commissioners of medical services whose tenure of office had been terminated since January, 1924, who had received notice that their services would not be required after the expiration of their contracts; how many of these were disabled or had war service; whether any other men with no war disability and less service had been retained; and whether he would investigate any cases which might be brought to his notice.—Major Tryon replied: Since January, 1924, 18 deputy commissioners of medical services have been notified that their whole-time employment will not be continued after April 30th, 1925. Of this number 15 served in H.M. Forces during the Great War, 12 overseas and 3 on home service, and 4 are disabled. Of the three non-service officers, one is a retired naval officer who was over age during the Great War. The staff, numbering 203 not under notice, include nine medical officers with no war service and a number who sustained no disability during their war service, but I am satisfied that the selection was made as the result of comparison of the claims of all members of the medical staff affected in which war service and war disability were given due weight. It was necessary, however, that comparative suitability and aptitude for the particular kind of work to be performed should be the paramount consideration, and in view of the importance of the medical side of the pensions administration it was impossible that there should be any relaxation of this rule.

Disinfection of Casual Wards.

Mr. Benjamin Smith asked the Minister of Health whether any of the casual wards which were stated in the recent survey of the casual wards outside London to be poor as to cleanliness, or in bad condition generally, were infested with lice; and, if so, would he take immediate steps to compel the guardians to provide sufficient means of disinfection, and to bring the wards up to the standard of those other wards where the cleanliness was declared in the survey to be good.—Sir Kingsley Wood replied: My right hon. friend is not aware of any case in which casual wards are infested with lice. The second part of the question, therefore, does not arise.

Appointments.

Campbell, R. D., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Kirriemuir District of the County of Forfar.

Davies, T. B., M.D., B.S. Lond., M.R.C.P. Lond., F.R.C.S. Eng., Assistant Surgeon for Diseases of Women, West London Hospital.

Goodwin, A., M.D. Lond., F.R.C.S. Eng. and Edin., Assistant Obstetric Surgeon, Westminster Hospital.

Guthrie, T., M.B., B.C. Camb., F.R.C.S. Eng., Honorary Lecturer in Laryngology, University of Liverpool.

Paterson, D. H., M.B., Ch.B. Edin., M.R.C.P. Lond., Physician to the Department for Diseases of Children, Westminster Hospital.

Wood, W. H., M.D., Ch.B. Manch., Derby Chair of Anatomy in the University of Liverpool.

St. John's Hospital for Diseases of the Skin, Leicester-square: Dore, S. E., M.D. Camb., F.R.C.P. Lond., Honorary Physician; and Roxburgh, A. C., M.D. Camb., M.R.C.P. Lond., Honorary Assistant Physician.

Vacancies.

For further information refer to the advertisement columns.

Adelaide University.—Marks Lectureship in Applied Physiology and Sheridan Fellowship. £750.

All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Res. Sen. H.S. at rate of £200. Also Jun. H.S. at rate of £100.

Birmingham City Fever Hospital, Lodge-road.—Asst. M.O. £400.

Bradford City.—Sen. Dent. O. £650. Also Asst. Sch. Dentist. £450 and bonus.

Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—S. Also Pathologist (gynæcological). £40.

Dumfries and Galloway Royal Infirmary.—Jun. R.M.O. £125.

Eastbourne, Princess Alice Hospital—Res. H.S. at rate of £175.

L.C.C. Mental Hospital Service.—Junior Asst. M.O. £432.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. at rate of £150.

Malayan Medical Service.—Medical and Health Officers. See advt. for salaries.

Merthyr General Hospital, Merthyr Tydfil.—Res. H.S. at rate of £100.

Royal Army Medical Corps.—Commissions.

Royal College of Physicians, Pall Mall East.—Milroy Lecturer.

St. Bartholomew's Hospital.—Assts. to the Surg. and Med. Professional Units.

St. Mary's Hospital, W.—Med. Supt. £400.

St. Pancras Dispensary, 39, Oakley-square, N.W.—Hon. P. and Hon. Ophth. S.

South Shields, Ingham Infirmary.—Sen. H.S. £200.

Weir Hospital, Grove-road, Balham, S.W.—Asst. R.M.O. £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Ryde, Isle of Wight; Braemar, Aberdeen; Ayton, Berwick; and Leeds, South, Yorks.

Births, Marriages, and Deaths.

BIRTHS.

David.—On Dec. 9th, at Gwestfa, Manordilo, South Wales, the wife of Dr. T. W. David, of a son.

Elvery.—On Dec. 6th, at Karachi, the wife of Major Philip Elvery, M.C., D.S.O., R.A.M.C., of a daughter.

Twort.—On Dec. 7th, at The Wilderness, Camberley, the wife of Dr. F. W. Twort, of the Brown Institution, London, of a daughter.

Wootton.—On Dec. 6th, at Ewell Colony, Epsom, the wife of Dr. L. H. Wootton, of a daughter.

DEATHS.

Brewer.—On Dec. 11th, suddenly, William Kenneth Brewer, M.R.C.S., L.R.C.P. Lond., aged 57, of 39, Belsize Park, N.W. 3, dearly loved husband of Mildred Magnet Brewer.

Paxton.—On Dec. 9th, at South Pallant, Chichester, Francis Valentine Paxton, J.P., M.B.Oxf., M.R.C.P., aged 88 years.

Scott.—On Dec. 5th, in Paris, Gerard Affleck Scott, M.B., C.M. Edin., of Ballarat, Australia.

IN MEMORIAM.

Swan.—In memory of Charles Atkin Swan, O.B.E., B.A. Oxf., M.B., B.Ch., M.R.C.S., L.R.C.P. Lond., F.R.G.S., F.R.P.S. (late President), Founder of the first Flying Corps Hospital in London, the beloved husband of Veronica, who passed on Dec. 13th, 1923, aged 60 years, fortified with all the Rites of Holy Church. R.I.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ALASTRIM AND VARIOLA.*

Note Presented to the Committee of the Office International d'Hygiène Publique in its Session of October, 1924,

BY PROF. RICARDO JORGE (LISBON),
DELEGATE FOR PORTUGAL.

WHEN in May last I drew attention to the appearance of alastrim in the island of San Miguel, as a result of infection coming from Martinique, I permitted myself to make certain summarising observations on this disease, not only as being interesting in itself and much more so by its affinities, but also as one which, after having bulked largely in the chronicles of exotic pathology, has now placed its feet on European territory where it seemingly intends to entrench itself. I now ask leave to return to a subject of which so much is now being heard, not only at meetings of academies of medicine, but also in the columns of the medical press and in official reports. The "alastrim question" must needs be topical; it is a present actuality.

The basis of this question, on which opinions are divided, sometimes with a certain asperity, is to know where to place this disease in the system of infectious pathology. The discordant opinions would not be thrown at each other with so much energy if we had to deal merely with a simple question of nosological classification. The discussion is animated because the classification of alastrim touches on the diagnosis and prevention of an epidemic condition of such primary importance as variola, a disease subject to compulsory declaration and to a compulsory system of prevention, the strict application of which has led to an agitation in certain countries culminating in the clamorous doctrines of freedom from prophylaxis which are preached by antivaccinators and Christian Scientists.

Unicists and Dualists.

While some, the *unicists*, desire to see in alastrim merely an expression of variola, others, the *dualists*, persist in believing it a species sui generis, autonomous and independent. Now if the latter are right, if we have concern with a new morbid entity—whose character is basically non-variolic and only varioliform to the extent that varicella is varioliform—all these administrative requirements would be beside the mark. If, on the other hand, alastrim is only a deceptive label, if it ought to be regarded and considered as substantially identical with small-pox or as an indefinite form of small-pox, then all the rigid measures of prophylaxis are applicable and should be required. It is, however, the gravity of the disease which justifies the severe measures taken against small-pox—a gravity which is no less for mild cases which by their infection can engender very severe and fatal cases. And inasmuch as alastrim, looked at from the most comprehensive point of view of epidemiology, in circumstances collective and individual, maintains almost an ideal benignity, the peoples may consider that the imposition of all this heavy weight of preventive administration is lacking in the moral force which should be behind it.

It is not clear to the public why a patient covered with a varicella eruption should be left peaceably at home, while another who appears quite like him (except, perhaps, that his rash is so slight and its elements so few that one can count them) is obliged to be isolated in a hospital from which he will return after a similar uneventful cure. This is what happened last year on the occasion of the epidemic at Gloucester which was considered to be "*mild small-pox*" but was so innocuous that in a total series of about 500 cases it caused only three deaths, and even these could not be represented as entirely the result of the disease, as other causes of death also operated. Similarly, in Switzerland, where according to the communication made to us by Dr. Carrière in 1922, "the public even invoked the mildness of the small-pox as a reason for refusing vaccination, alleging that the consequences of the latter could be more disagreeable than those of the disease which it was claimed to prevent."

Practical Bearing of the Controversy.

This contrast has led me to venture on some reflections which, though they may seem unusual at first sight and possibly a little dangerous, appear to merit consideration and have not so far been introduced into the discussion.

If the position be accepted that the disease with which we are dealing is small-pox—so "small" that it neither increases in virulence during extensive epidemics nor during its smallest endemic manifestations, then not only would it not be worth while to fight against the contagion, but one even ought to encourage it. In the villages of my country when epidemic measles attacks a house where there are numerous children, the mother considers that it is her obvious course to bring them all together in order that the disease may be communicated from the sick child to the healthy ones. Now for measles this course entails the danger of respiratory complications, whereas here there is scarcely any appreciable risk. The infection is so slight that it is hardly even necessary to call in the doctor; the disease, so to speak, kills nobody; it leaves no traces behind it; the face is not disfigured. Further, on the hypothesis of identity, a definite advantage will be gained; the victim, if one may call him a victim, has obtained a real profit since he remains immunised against all forms of small-pox more thoroughly and to a more durable extent than if he had been vaccinated with cow-pox. There would not even be any valid reason to check the diffusion of a variola so mild as this by means of Jennerian vaccination, since the epidemic attack itself will form a guarantee of protection against the malignity of severe small-pox which is better and as safe as that furnished by vaccination.

This manner of view may be pursued a little further. Inoculation of the small-pox virus itself was formerly applied as a preventive measure against the scourge. It was hoped thus to obtain for the inoculated person an acquired immunity by means of a mild attack which would protect him against severe and fatal attacks. It was a proceeding which was precarious and dangerous, as it not only artificially propagated the epidemic but also sometimes produced, not the discrete and benign form which was desired, but the formidable variety, confluent and lethal—the disease against which it was intended to protect. This variolisation has yielded place to Jennerian vaccination, but the protection of the latter is in general less effective and less durable than that of the former, to such an extent that cow-pox inoculation has to be repeated at intervals in order that immunity may be maintained. But what if one had at disposal a virus whose effects are safely attenuated, such as the alastrim virus is supposed to be? Might one not think of reviving the historic procedure of variolisation? Even to the dualist this suggestion would still be admissible, since it is generally believed that there is a difference between the virus of small-pox and of cow-pox although they immunise one against the other reciprocally. There would be room for experiments in this sense if we were not limited to the customary laboratory animals. Less than a century ago the comparison of the effects of variola and vaccinia was made by experimentation *in anima nobili*. As much from the point of view of scientific progress as from the advantage to be obtained for mankind, it is regrettable that such experiments, under suitably determined conditions, are not now becoming permissible and practicable whether for this particular infectious malady or for others which are special to the human species. It would be the only means of arriving at a solution of many questions requiring an elucidation at present very ineffectively provided by the use of monkeys, chosen in default of something better as the animals closest to the human whom they very imperfectly replace in the experimental field of infectious pathology.

In what has just been said, I have desired to give an outline of the much discussed problem of the "placing" of this new epidemic malady without making any assertion of my own, and by using the method of antithesis. Until the final solution has been attained—and it will always be incomplete until the microbic agents of variola and similar infections are discovered—it is at least useful to collect material and to test the notions which can be extracted from it. The documentation may be said to be abundant. To the work already published both before and after the war, among which are included classics like those of Korte in 1904 in South Africa and of Ribas in Brazil in 1910, must be added a great harvest of contributions of all kinds since 1919, clinical, epidemiological, and experimental, and coming from all parts of the world; for the disease is tending to become ubiquitous and wherever it appears it is not long in attracting attention by its peculiarity. In adding to these data those collected in Portugal, we have attempted the arduous task of making a kind of methodical and critical review of this material. For the latter I owe special thanks to Messrs. Raynaud, Buchanan, Carrière, Gouzien, Chagas, and Cumpston, as well as to Messrs. de Cazotte and Marignac, all of whom have given me bibliographical indications or have procured documents for me. Mr. Armand Netter has also supplied me with useful information and assisted me in the preparation of this memoir.

I. TERMINOLOGY.

The term *alastrim* has superseded other synonyms, being now almost universally employed. It is a Brazilian word derived from the Portuguese *alastrar* meaning "something which burns like tinder, scatters, spreads from place to place." In Portugal we have a similar word, *andaço* from

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* Translated (with slight abridgment and insertion of cross-headings) from the Bulletin of the Office International d'Hygiène Publique, Paris, October, 1924, tome xvi., No. 10.

andar, "something which travels," but it is applied to any kind of spreading epidemic. The word *alastrim* first obtained currency in Ribas's monograph, published in 1910, a fundamental contribution to our knowledge of the disease; the importance of Ribas's work and the euphony of the term have combined to favour its acceptance. I may note in passing that to keep the original sound derivatives should be spelt *alastrinic*, &c., and not "*alastrimic.*" The term is of popular origin like those of so many other eruptive fevers, the characteristics of which are so striking that the public determines their existence intuitively. It was first used by the natives in the interior of the province of Bahia, whence the disease and its name spread to the Southern States of Brazil.

Another name for the disease, also of the people, had received prior recognition in medical literature. This was *amaas*, a native word of South Africa, gathered by Korte, and utilised by him in the paper of 1904 in which he first claimed that the disease was a distinct entity. This Kaffir word signifies "milk in fermentation"; others contend, however, that it is a corruption of the Dutch *masels* or *masellen*, and corresponds to the English *measles* (Mitchell). In spite of its priority, however, it has not found general favour, perhaps because of its rather harsh sound; it is, of course, still employed by Anglo-African doctors.

An exanthematic fever with a vesiculo-pustular rash, *alastrim* is now grouped with the series of "pox" diseases, taking its place with *small-pox* and *chicken-pox*, which it resembles so closely that it is sometimes called *variola-varicella*, or *varioloid-varicella* in order to express this double analogy. It has also been given the name *milk-pox* and *white-pox* on account of the white and milky appearance of the contents of the vesicles at a certain stage in their development. In England, where it is generally regarded as only a stunted branch of the old small-pox stem, it is usually called *mild small-pox*.

Finally, in order to emphasise this relationship, without prejudging in any way the question of identity, the name *para-variola* (Beaurepaire-Aragao) or *para-small-pox* (Garrow) has been proposed in accordance with the terminology already adopted for other varieties of infection. The Brazilian doctor includes varicella as well as alastrim amongst the para-variolas; but the former has the right to a completely independent category since the facts of epidemiology and immunology prove beyond doubt that though it resembles variola it has no relationship to that disease. The use of the term *para-variola* seems to me excellent, but I would reserve it for the exotic varieties, alastrim and amaas, for the so-called white or mild small-pox, or, indeed, for all the different variations of ordinary small-pox, without prejudice to the question of their identity or disparity.

To those who refuse to recognise "alastrim" and adhere firmly to the term variola, a composite designation such as *variola-alastrim* might be recommended. To my mind, this solution might satisfy their "unicism" and at the same time serve to distinguish a peculiar clinical and epidemiological form which can no longer be ignored.

II. Places of Origin and Geographical Distribution: Present Foci.

Africa.

The disease first appeared to the eyes of a pathologist as a distinct entity in South Africa. In 1904 De Korte gave its first description under the local name of *amaas* or *Kaffir-pox* at Graaf-Reinet in Cape Colony. It was by no means a new infection in the district, for in 1895 G. Turner had reported its existence (Mitchell) and Fehrsen has declared (1922) that so long ago as 1876 to 1878 he saw epidemics of it spread repeatedly, producing thousands of cases among the natives; he believes that the disease has existed among the Kaffirs since time immemorial. In 1910 Spencer and Grant affirmed the existence of amaas. This South African focus is still active (Mitchell, 1922) and it is not the only one in this quarter of the globe, for there have been epidemics since 1917 at Stanley Pool, at Leopoldville (von Hoff, 1923), and at Libreville (Gaboon) and Brazzaville in the French Congo (Lebeuf and Gambia, 1919). One naturally supposes that the disease has already reached still other regions of the African continent.

Central America and West Indies.

The focus in the West Indies and in Central America, the Antilles focus, has probably as long a history as that in the Cape. The first island on which para-variola was recorded was Jamaica, where so far back as 1867 Izett Anderson published his study of the epidemic of 1865 and 1866; he described it under the apt title of varioloid-varicella in order to express its hybrid nature among the eruptive fevers. De Korte quotes his description and uses it as a confirmation of his own ideas as to the epidemic specificity of the disease. In Cuba a similar infection was prevalent during the Spanish-American War, which under the name of *Cuba-itch* has invaded the Southern States extending even as far as Canada. In 1902–04 it was present in epidemic form in Trinidad, where it was noted by Bridger (1903), Dickson and Lassalle (1903), and Seheult (1908).

Since the year 1920 the West Indian focus has greatly increased in activity. In 1920–21 the epidemic involved in Jamaica 6000 persons (Moody, 1922), while Gideon (1920) estimates it at 9000 cases within six months. This Jamaican alastrim has proved a fruitful field for epidemiological observations by both English and American workers, and its virus has been employed for experimental work by Hector Read and Leake and Force (1921). The disease has been prevalent also in Trinidad (Dickson, 1923), in Hayti (Melhorn, Brown, 1921; Loughnan, 1923), and in San Domingo, from which it was carried by passengers to Antigua (Hill, Branch, and McDonald, 1923) as well as to Snake Island (Jones, 1922). An epidemic of "mild small-pox" was recorded in Cuba in 1921–23 (Hoffman, 1923). In their turn came the French Antilles, Guadeloupe, and Martinique, where last year there occurred the fierce epidemic described by Mr. Gouzien; in this epidemic all the hospitals were full to overflowing and recourse had to be made to temporary shelters to house the successive waves of cases. Arnould (1923) has given an excellent review of this outbreak in which he estimates the cases in Martinique at 4000; Baujeau (1923) has applied to it systematic observations and experiments on laboratory control.

In November, 1923, the s.s. *Oyapoc* carried the disease to the mainland through Cayenne in French Guiana (Chauvet). It is safe to say that the entire archipelago in the Caribbean Sea is infected to a greater or less degree and, with this as a focus, the disease has spread to the mainlands adjoining—i.e., to Guiana, to the United States, and to Canada, where it is prevalent but is simply labelled "small-pox." Our colleague, Mr. Chagas, tells us that during a tour which he made recently in the U.S.A., he found series of alastrim cases at Rolley in South Carolina, at Richmond, Va., and at Toronto. At the moment sparks from the blaze are falling on Europe and, as we shall see, a bombardment of the coast of Europe is going on with the alastrim virus of the West Indies and particularly of Martinique, where it is at the moment at the height of its epidemiogenic capacity.

Brazil.

We now come to the Brazilian focus. This was discovered and studied at Sao Paulo in 1910 by Ribas and other Brazilian doctors. The first cases were among country labourers ("sertanejos") travelling to work on the coffee plantations. They declared that in the interior of the State of Bahia the disease was extremely prevalent without ever being fatal; because of its rapid spread it was known colloquially as "alastrim." These labourers thus may be said to have identified the disease and made it known to the doctors. Spreading in this manner along the river San Francisco, the disease invaded different districts in the State of Sao Paulo and in the contiguous States of Minas and Parana so that, either in this way or by extension from the hinterland ("sertao") of Bahia, it reached Matto-Grosso, Goyaz, Minas, and the Southern States of Brazil. Beaurepaire-Aragao in the following year estimated the alastrim cases at 250,000; this is the highest figure known. Mr. Chagas found one of the earliest cases which occurred along the San Francisco in 1910, where he was studying malaria at the time; it was a case of a labourer coming from the "sertao" of Bahia whom he himself had vaccinated a few months before. Despite rigorous isolation of this man an intense outbreak occurred among the other workmen engaged in railway construction and among the local population. Mr. Chagas reports that nowadays there are merely small exacerbations here and there.

Australasia.

Para-variola has established itself also in Australia where it was reported at Sydney in 1913; Robertson has given a very complete account of this outbreak, containing a preface by Dr. Cumpston and some beautiful photographs. In this outbreak 1037 cases were sent to hospital; later a total of 2000 cases was reached with only three fatal cases among the lot. New Zealand was also affected and, in fact, it was his experience of the disease in New Zealand that enabled Lebeuf to identify it in the French Congo (Gouzien). In India cases of "mild small-pox" appear to have been recorded.

Europe.

Finally, Europe also has shared in the disease, a share which has not always been sufficiently recognised; the new eruptive fever has taken an endemic form in several different places, forming the *European foci.*

England.

England was the country in which the new invader first pitched its camp in the form of the tiny outbreak of 1919 when 31 cases occurred in a limited district in Norfolk and Suffolk. Copeman, who studied this, regarded the cases as similar in kind to Brazilian alastrim and the attenuated small-pox which he had seen at Trinidad in 1902; he had already seen similar cases in Cambridge in 1903. This new series of cases was due to importation from the Eastern Mediterranean by a sailor who had been there on a mine-layer during the war. There followed two small explosions in 1922, at Ilkeston (104 cases) and Heanor (55 cases), and then in 1923 the Gloucester outbreak in which 498 cases were sent to hospital. A complete account of the latter with descriptions and statistics has been given by Jameson and Painton. The extent to which England has now been invaded by what is called "mild small-pox" has been shown to us by Sir George Buchanan in striking fashion by means of the statistics and graphic representations of the ncidence and mortality of small-pox in England and Wales. The figures of cases increased from 336 in 1921 to 973 in 1922, and to 2504 in 1923. Yet the total deaths only numbered seven. England is now affected by an epidemic of *small-pox* which is widely diffused, but of a severity which is feeble or insignificant.

Switzerland.

As regards Switzerland we owe our information to Mr. Carrière. In the spring of 1921 a variety of small-pox presenting unusual features was noted in the canton of Zürich and later in that of Glaris from which it spread throughout a large part of Switzerland. After some doubts and discussions it was recognised as of the nature of variola and was called "*white-pox.*" In three years there have been notified 3900 cases with only three deaths.

France.

In France there have been isolated cases occurring in the Western ports which traffic with the French colonies in Central America; these have been mostly in coloured people recently arrived, especially from Martinique (Léon Bernard, 1923). A case in a passenger landing at St. Nazaire rom Martinique has just been found in Paris (Cambessedès, 1924). There is going on, thus, at the present moment, an active importation of the alastrim seed which may sprout eventually into an epidemic.

The Azores.

This has actually occurred in the Portuguese island of San Miguel in the Azores where small-pox is not endemic. On June 7th, 1923, the French ship *Vanquelin* arrived at Ponta Delgada from Pointe à Pitre (Guadeloupe) in order to disembark a negro who had fallen ill on board. The case was diagnosed as small-pox and in spite of the precautions taken (isolation and disinfection) alastrim spread rapidly, at first in the town, later throughout the island; it has displayed great power of spreading but has been extremely benign. Up to the month of April last 15,000 cases with only ten deaths have occurred in a population of 126,000 nhabitants (Jaime Neto); the case-incidence is thus more than 10 per cent. At present there are only sporadic cases n certain parishes. But the alastrim has not remained confined to San Miguel; in February last it invaded the sland of Terceira, having been brought by a person from Ponta Delgada who settled down near Angra. Here also, n spite of the precautions taken when the first focus was recognised, the epidemic spread throughout the whole sland. There have been no deaths and the epidemic was already on the down grade in September. A few days before I left Lisbon I saw a typical case of alastrim from the island of Terceira in the isolation hospital there.

Ubiquitous Distribution.

There are thus at present the following foci: the African, he Brazilian, the Caribbean, the American, the Australian, and, in Europe, the English, the Swiss, and that in the Azores. One is entitled to assume that para-variola exists lsewhere as well, occurring in the form of doubtful sporadic ases or epidemics of little gravity and being lumped together as "small-pox" or "varioloid" or "benign small-pox." t must be admitted that occasionally the last diagnosis has been the result of an official direction, diagnosis made by decree!

Supposed Racial Proclivities.

This summary of medical geography shows the strong endency of the infection to become ubiquitous and pandemic. t is decidedly no longer a simple nosological curiosity to be catalogued among those of secondary importance in an ndex of colonial or tropical diseases. The old conception of two different nosologies, the European and the exotic, has long ceased to have any justification if it ever had any xcept as a reflection of the traditional attitude of superiority f Europe over the rest of the world. This is proved once again by alastrim, which used to be considered as an endemic disease of the colonies in Africa and America only, but has now become a disease of Europe. The idea of its "colonial" nature has been pushed so far as the supposition that the white race was naturally immune to para-variola. Fehrsen in Africa actually held that the infection was confined to the Kaffirs since he had never seen a case in a white man. The same was thought to be true in Martinique, as Mr. Gouzien has told us, but latterly a few white people have also contracted the disease. In Brazil, moreover, alastrim had already attacked the mixed races of the interior. Yet, in France especially, the disease still continued to be regarded as the exclusive privilege of the black races (cf., the séance of the Academy of Medicine of October, 1923). This theory of the immunity of the white race, already impossible to maintain in view of the similar epidemics in the U.S.A. and Australia, has been completely exploded by the events at Ponta Delgada as I pointed out at the May session of the Office International. In this case there can be no doubt as to the nature of the disease: it was plainly an epidemic among people of pure white race infected by a negro from Pointe à Pitre; the direct carriage of alastrim from America to Europe had been detected in the very act.

Transmission from Country to Country.

These examples of this transport of the virus from one epidemic area to another are not numerous, and, in fact, I think the one just mentioned is the only instance of its carriage over a long distance. The trajectory, as it were, and the circulating routes of alastrim are still obscure. In Africa it appears in the hinterland of Cape Colony. Is this the primary focus and true origin of the disease? It is impossible to give a confident affirmative. In Brazil, again, it is in the back country, the "sertao," that the infection appears to hatch. In the Caribbean area Jamaica was the first island in which it was observed, and it is known that it infected the other islands later; now and then one seems to detect the passage from one to another. The Australian epidemic was said to have been linked with the outbreaks in the United States which were going on at the time in Chicago and Ontario (Robertson). In England the question of importation was mentioned only in the case of the Suffolk outbreak where a Mediterranean origin was suspected although no alastrim was known to be prevalent there. In Switzerland the invasion seems to have occurred without any evidence of para-variola in the surrounding countries, though these form naturally the only means of connexion with infected ports. The islands of San Miguel and Terceira in the Azores remain the only example where both origin and route of the epidemic are well established. From these islands the infection spread like oil on water throughout the Azores, which in this respect form a counterpart to the Caribbean Archipelago on the other side of the Atlantic.

III. Clinical and Epidemiological Characteristics.

In dealing with such a controversial subject it is necessary to proceed with caution if we would avoid hampering ourselves with prejudices. We ought more than ever to cling to facts, those which are obvious to everyone, but which are sometimes twisted and interpreted, for the purpose of dialectic, so as to support some preconceived theory. In this way a clear vision of things is obscured, some being given undue importance, and others made of little account, according to the necessities of the argument in favour of the cause which is championed. But while these partisan excesses should be avoided, we must also be on our guard against the excess in the opposite direction which is committed by those whom I may call the "agnostics," people who, being of opinion that the time is not yet ripe, are unwilling to commit themselves to anything, and are content to shelve the matter with a shrug of the shoulders. But as material for observation has accumulated for 20 years, it is now possible to draw some conclusions resting on more or less solid foundations, tenable until the contrary is proved. One may attempt these conclusions while realising that they will not settle the essential nature of the disease, and that in spite of the advances which are being made, we must still frequently be confronted by the insoluble.

Identity of these Para-variolas.

The first proposition to consider is one which few would find it possible to contest—namely, the clinical and epidemiological identity of these para-variolas which have appeared at different times and in different places, and have received various labels. The "amaas" of South Africa, the "alastrim" of Brazil, the "varioloid-varicella" of the Antilles, the "mild small-pox" of England, the "white-pox" of Switzerland—all these are only one and the same thing.

When Korte, in 1904, described the amaas of the Cape, he was struck by the points of resemblance to the epidemic of varioloid-varicella observed in 1867 by Izzet Anderson in

Jamaica. When, in 1910, Ribas found the alastrim of San Paulo, he connected it at once with the amaas of the Kaffirs. Armstrong compares the Sydney epidemic with the descriptions given by Ribas. When we examine the reports of the epidemics in Suffolk and Gloucester, we see the same symptomatic thread running through them. When Sir George Buchanan sent me information and documents relating to the English "mild small-pox" he said: "If you will look, for example, at the history of the outbreak in the city of Gloucester regarding their epidemic in 1923, you will find much which is similar to Dr. Copeman's descriptions, and I may say that I am disposed to think that the 'mild small-pox' described in Gloucester, like the mild small-pox in other parts of England which I mentioned to the Office International and also Dr. Copeman's cases in 1919–20, are all much of the same kind. If we apply the term 'alastrim' to any of them, we should probably have to apply it to all and to say that our present outbreaks are almost entirely 'alastrim.'" It is right to add that Sir George Buchanan was of opinion that the innovation which would be introduced by the adoption of this name would have no nosological value, but that is beside the present question. The "white-pox" of Glarus, Zurich, and other cantons would fit into the same picture, and so would the recent outbreak in the Azores. At first I had some doubts about the English and Swiss "small-pox," following the discussion which took place at the session of April–May last of the Committee of the Office International. After reading the report on the Gloucester outbreak, and the lecture on the Swiss epidemic given by Mr. Carrière to the participants in the exchange of sanitary personnel, no further doubt remains in my mind. To sum up, in Africa, in America, in Australasia, and in Europe, everywhere and for half a century, whether in coloured or white races, alastrim has presented a uniform "facies," a syndromal physiognomy whose essential features have been the same. This proposition seems to me one of great importance which deserves to be kept in mind. It is necessary to consider the characteristics of this epidemic disease type. But before doing so I may give the following notes on the outbreak at San Miguel.

Summary of San Miguel Outbreak.

The report of the health delegate at Ponta-Delgada (Jaime Neto) is interesting, because it simply describes facts which were new to the author, and it is not influenced by any special preliminary study of the disease. The delegate recognised from the outset that the disease in question was not pure variola. The symptoms were: slight fever, rarely reaching 39° C., lasting two or three days; slight headache, pain in the back, occasionally vomiting, and furred tongue; the patient then remains afebrile and the eruption follows, papules at first, quickly changing to vesiculo-pustules, some containing clear and others a milky fluid; later on pustules are formed. The eruption is fairly general and a few umbilicated lesions are found; it is rarely confluent. Its development takes 24–48 hours; some days later desiccation commences and proceeds rapidly, leaving only a purplish discoloration which gradually fades to white. The size of the lesions varies from that of a grain of corn to that of a pea. As a general rule, the rash begins on the face, spreads more or less over the whole body, especially the face, hands, and feet. The general condition remains excellent, and in a few days the patient is free from any discomfort.

With regard to the origin and course of the epidemic, it appears that a French boat, the *Vauquelan*, coming from Point à Pitre, arrived at the port of Ponta-Delgada on June 7th, 1923. A request was made that a sick man, a negro, might be disembarked. The maritime health officer diagnosed the case as small-pox, and the patient was admitted to the isolation hospital. On June 17th an attendant, who had been in contact with the patient's wearing apparel, was attacked with a fever, and later with a rash, which was diagnosed as chicken-pox. The health delegate inquired into the case on the 21st, and an investigation showed that a "foyer" of infection had already been formed. Three brothers of the attendant were among those infected. The epidemic spread in spite of the measures taken.

A vaccination service was organised, and it was found that the persons vaccinated were not attacked, or if they were, that the attack was slighter than in the case of non-vaccinated persons. If the vaccination is performed just before the eruption it rarely takes, and if performed during the eruption or after desiccation it never takes.

Our health officer came to the judicious conclusion that what he saw was too much for chicken-pox and too little for small-pox. I was about to write to him to inquire into the exact nature of the epidemic when I received a fresh letter; he himself had already made the diagnosis of alastrim after reading what was said in the Bulletin of Office International. The picture of the outbreak which took place at Terceira in January of this year is exactly similar. Other information on the epidemic in the Azores is given elsewhere in this paper.

THE EPIDEMIC DISEASE-TYPE OF ALASTRIM.

The description of alastrim should be undertaken by bringing it into contrast with the two analogous diseases—chicken-pox and small-pox. Its resemblance to each is so striking that the term *variolo-varicella* has been used to signify its hybrid symptomatology. This resemblance has been the cause of clinical confusion among practitioners whom the disease has taken unawares, particularly at the onset of an epidemic; some thinking the case to be small-pox, others chicken-pox. This happened at first at Ponta-Delgada, as it has elsewhere.

One can say, however, that nowadays the resemblance of alastrim to chicken-pox causes no embarrassment. Although diagnostic errors are always possible, the two diseases are fundamentally distinct, for chicken-pox has possessed, for a long time past, its own pathological characteristics, or, in other words, it is a specific manifestation of a polymorphic virus, the various other specific effects of which, according to the pathological concord associated with the name of Mr. Netter, include zona or herpes. The same, however, cannot be said of small-pox. Some associate alastrim with it, others differentiate. In comparing the two, it would be well here to set aside theoretical aspects, otherwise important, and to consider only the material, nosographical, side to see if a satisfactory basis exists on which to determine similarities and differences.

In contrasting these two morbid entities, the new and the old, it would seem that there ought at least to be no doubt or dispute about the nature of the latter, which has been known to doctors, and no less to the public, for so many centuries. Not so, however, in fact. Experienced practitioners only acquainted with the old-fashioned severe small-pox fall under suspicion as likely to fail to appreciate that a disease once so formidable may have become attenuated by time. Personally, however, though I am among the older practitioners, I may be acquitted of the charge of closing my ears to the pundits of epidemiology.

A type must be chosen for comparison, and it should be one upon which everyone is agreed. This will, no doubt, be the classic type of small-pox—the *variola vera*—the variola of Sydenham. It is not necessary to go back to the seventeenth century to recognise Sydenham's small-pox. It is still with us, even in countries such as England and Switzerland where small-pox was almost becoming extinguished until their compulsory vaccination laws received a check.

For example, Sir George Buchanan has told us of the epidemic in Glasgow in 1920–21, an epidemic of the true complete type of small-pox, with its customary severity, which broke out two years before the "mild small-pox" in Gloucester. And Mr. Carrière has also reminded us that the small-pox in Zurich and Glaris had been preceded by ordinary small-pox, of habitual severity, in Bâle. That is to say, ordinary small-pox remains in the very regions where the eruptive fever which we are discussing has arisen, and it can be used for the purpose of comparison. Thirty years ago, when I was medical officer of health in Oporto, we had several years' experience of widespread and severe epidemics. We can refer present occurrences to the memories of that period which remain to us.

If we have just spoken of Sydenham's variola as a kind of standard, we do not wish to infer that it is to be strictly confined to the type which is described in the pages of the great epidemiologist. One knows how relatively frequent, right up to the first decades of the nineteenth century, was the redoubtable confluent form, nearly always fatal. But it is now less frequent. The diminution may be attributed to the influence of vaccination, although it is observed also among the unvaccinated small-pox cases. Similarly small-pox epidemics reveal variations in type and severity—as in the time of Sydenham, who speaks of *varioles mitiores*. But these considerations are not inconsistent with the existence of a disease-type, common to all these epidemics, which assures the perpetuation of the particular nosological character of small-pox. It is to this, what one may call the normal small-pox of every-day occurrence, that one must refer the characteristics of alastrim.

The Rash.

A "pre-eruptive" rash is very rare in alastrim; not more than two or three cases are found even in the big epidemics. A rash on the mucous membranes is less rare. The rash must be considered in relation to its distribution and its character.

Distribution.—The rash generally appears on the third day; first on the face and neck, progressing to the trunk, then the arms and legs. Sometimes, though seldom, it commences on the limbs. The efflorescences appear at the same time, without repetition or subsequent additions in the same region of the body—unlike varicella in which distinct cropping occurs. Frequently, in a third or more of the cases, they are fairly profuse. At Ponta-Delgada numerous cases were noted with a generalised eruption scattered all over the body. Generally rare on the trunk, the number increases towards the extremities, the head, the hands, and the feet. The rash has the centrifugal distribution (Painton), usual in small-pox and contrary to that found in chicken-pox which is centripetal—i.e., abundant on the trunk and decreasing towards the extremities. Chauvet, in cases which he has studied, believes that he has seen rashes with a nerve or even a definite nerve-root distribution.

Character.—The eruptions pass successively through the well-known stages of macule to papule, papule to vesicle, and vesicle to pustule. It is incorrect to state that the eruption may be vesiculo-pustular from the outset: this is contrary, in particular, to the observations of Ribas and Baujean. The cycle is completed more rapidly than in small-pox; the vesicle grows more quickly, at times with opalescent contents, which has given rise to the name milk-pox. Aborting of the rash, wholly or partially, is common.

So far the difference from small-pox is not very noteworthy. A clear distinction is, however, made by the shape of the vesicle which, in growing, becomes round and convex like a bulla, and domed as in chicken-pox. In small-pox, on the other hand, the vesicle remains flat or even depressed in the centre. The chicken pock and the alastrim pock are unilocular, the small-pock is septate and multilocular, the partitions causing the depression in the centre—the phenomenon of umbilication. Neither the vesicle nor pustule of alastrim are umbilicated; there is no primary or secondary umbilication. This is said by some observers to be due to the fact that the lesion is more superficial. Desiccation completed, the crust falls off leaving a mark on the skin which remains for some time, but without cutaneous erosion and without a permanent scar. *Alastrim leaves no pitting on the face.* These signs, being of major importance, deserve consideration.

But Wanklyn, Mitchell, Baujean, and others have stated and demonstrated that the well-known diagnostic signs of vesicular eruptions, classified according to the configuration of the pock, are liable to cause error. In small-pox one may observe round vesicles and pustules, just as in alastrim one may find umbilication; and, finally, small-pox may occur without cicatrisation while alastrim may leave marks on the face.

Quite recently, in Martinique, vesicles were noticed which were flat, sometimes on the limbs, and it is also stated that patients have been permanently marked (Baujean). Mitchell says that he has found several umbilicated spots on Europeans with alastrim; this was of less frequent occurrence in negroes, perhaps because of differences in the structure of the skin. In the Lisbon case several pustules, depressed in the centre, were observed on the arms and legs: but this was merely the effect of desiccation; false umbilication was also noted by Arnould in Martinique, and was attributed by him to the emptying of the pustule. When they were compared with the pustules of another patient in hospital with undoubted small-pox, it was evident that those of the latter case were uniformly and deeply umbilicated; the distinction was well marked.

However this may be, these facts should be taken into account at the bedside so as to avoid making hasty and dogmatic diagnosis, based solely on the character of the eruption which must not be set up as pathognomonic. The important matter for the epidemiologist, however, is the *generic* character of any given clinical characteristic during an epidemic; exceptions do not invalidate the rule; on the contrary, they confirm it.

Briefly, in epidemics of ordinary small-pox, umbilication and scars are the rule, and correspondingly their absence is the rule in alastrim. I think that this proposition can hardly be any longer contested. The fusion of contiguous pocks which may occur either in the vesicular stage (more correctly known as primary confluence) or in the pustular stage (coherence or secondary confluence) is comparatively frequent in alastrim which is accompanied by a profuse rash. Every observer speaks of this, and so it was at Ponta-Delgada. Baujean records "in some cases of partially confluent eruption, the vesicles, mingling into large blebs, became, in the suppurative stage, veritable small pockets of pus raising up the skin in certain parts of the body, particularly the limbs." Ribas has noted the absence of the characteristic odour emanating from variolous patients during the suppurating and crusting stages; but alastrim in the confluent and cohesive varieties can also give off a most nauseous smell. (Baujean, in Martinique, Van Roof, in Leopoldville.) Cohesion and confluence are characteristics common to small-pox and alastrim, while at the same time they form a contrast, for, as we shall see, their prognostic significance differs widely for each.

Eye complications are very rare; at San Miguel, however, a few cases of keratitis were observed, three of them followed by loss of the eyeball (communication of Jaime Neto).

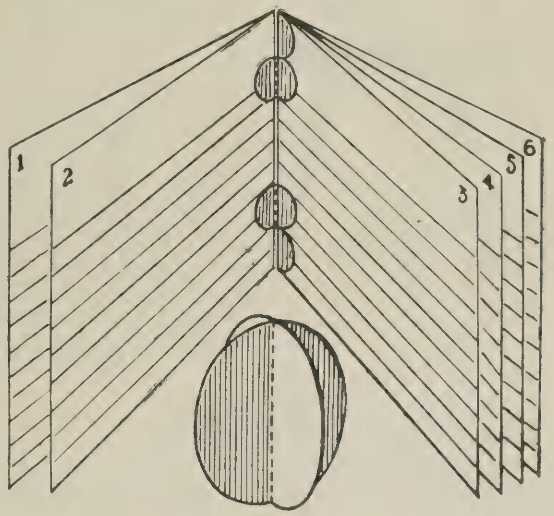
(*To be concluded.*)

INCRUSTED WATER MAINS.

THE Bradford water department has adopted with success a new method of improving the water-supply through its mains. In these mains, which are from 30 to 35 inches in diameter, it was found that during the course of half a century the interior of the tubes had become incrusted with a deposit from the water, and which the pressure and onward flow of the water was unable to remove. A special scraping apparatus provided with revolving blades and stiff brushes was inserted into the main at one of the hatch holes or at an opening made on purpose, and was forced on by the water pressure and removed at the next hatch hole. The machine was driven by the water pressure and in revolving it dislodged the incrustation. The main was cut at intervals of a quarter of a mile apart, and in some portions of the main the scraper in its onward course discharged about seven tons of incrusting material. The mains were restored to a state of efficiency equal to that of the original main, and it is calculated that by obviating the necessity of laying new pipes a sum of £65,000 has been saved.

A HANDY CARD INDEX CLIP.

ALL who use a card indexing system know the practical difficulty of keeping a series of cards together by means of the ordinary wire clip. This difficulty may be obviated by a simple and ingenious contrivance submitted to us by Mr. J. M. F. Whitby, a medical student in his final year. Circular pieces of transparent linen, measuring 0·7 inches in diameter, are sewn together across a diameter to make a little book of four semicircular leaves. Two pairs of adjacent surfaces are covered with an adhesive substance for the purpose of holding the edges of cards placed between them. The M.H.S. (i.e., Medical History Sheet) clip, as it is called, is thus a strong, transparent linen hinge by which any number of cards can be attached together in book form. The hinges are practically untearable. The device is already in use for case-sheets at a hospital and by a number of insurance practitioners to whom as a body it should specially appeal. The price of the clips is 1*s.* 3*d.* per 100 or 5*s.* 9*d.* for 500, and they may be obtained from Messrs. Bridge and Co., 92, Chancery-lane, London.



HERBALIST PRACTISING AS A DOCTOR.

OUR South African correspondent writes: An intelligent-looking Hindu was recently fined £15, with the alternative of three months' hard labour, at the Durban District Court, on the charge of practising as a doctor without a licence, and with false pretences. The accused had visited several patients, on whom he practised palm-reading and other "sorceries." He was known among the Indian community as a herbalist, and many people believed in his ministrations. Four specific acts of doctoring were alleged, and for these the accused had received £7 3*s.* 6*d.* The productions in the case were a small phial of yellow sulphurous liquid, a small curry tin containing stones embedded in a pink powder, and a small packet of beans. The medicine in the phial was supposed to be a panacea for all ills, and the accused had asked £4 for it. The magistrate said that he could come to no other conclusion than that the accused held himself out to be a doctor, and had deluded credulous people into believing him.

AN ART CALENDAR.

THE Clayton Aniline Company, Ltd., of Upper Thames-street, London, E.C. 4, have issued an art calendar which takes the form of a reproduction of *The Doctor Forbids*, a picture by the late Edgar Bundy, A.R.A., which attracted attention at the Royal Academy in 1916. The picture represents presumably a doctor and his friend or patient dining together, the former forbidding his companion to take the wine which the butler is about to offer him. The warning gesture of the doctor and the surprise in the face of the seemingly robust and healthy diner are well depicted, and the hesitating and puzzled attitude of the butler is also closely observed. The issue of a calendar at Christmas-time with such a message as its conspicuous frontispiece shows how far we have travelled recently, as a nation, on the road to temperance.

A USEFUL FOLDING CHAIR, "THE STAKMORE."

FOLDING chairs have many advantages, but they are frequently cumbersome, difficult to manipulate, and liable to catch the clothes of the sitter. These disadvantages are, however, absent in the chair here illustrated. Made of bentwood, in mahogany and oak colours, with upholstered seats, the chairs are perfectly stable and can be folded flat in a few seconds, while it is extremely unlikely that even flowing drapery will be caught in the moving joints of the seats. The chairs are particularly suitable for hospitals, nursing homes, and such like institutions, or, indeed, anywhere where space is of importance, as they can be folded flat when not in use and stacked in a pile of negligible height—six chairs make a stack only 8 inches high. The chairs, which are made in England, are sold at 17*s.* 6*d.* each by Messrs. Rees, Mace and Co., 121, Cannon-street, London, E.C. 4.

HEALTH CONDITIONS IN CYPRUS.

A REPORT for the year 1923 has recently been received at the Colonial Office and it gives the population as 322,000, of which number 61,422 are Mohammedans, the bulk of the remainder being Greek-Christians of the Autocephalous Church of Cyprus. Public health was again good, except for an epidemic of measles, which caused many deaths among children. The stringent quarantine measures which continued to be in force effectually prevented the introduction into the island of plague, typhus, and other virulent diseases prevalent in all the neighbouring countries of the Levant and the Near East. This complete immunity cannot but be regarded (says the report) as eloquently testifying to the efficacy of the medical services responsible when it is considered that several thousands of refugees, many of the poorest class, have been received in Cyprus during the past two years from Smyrna, Cilicia, and the coasts of Asia Minor generally. Only one case of small-pox occurred during the year, and over 19,000 vaccinations were carried out. The prevailing diseases were, as in previous years, those of the digestive and respiratory system, influenza, diseases of the skin, rheumatism, malaria, and enteric fever. The anti-malarial campaign was, as usual, conducted under the supervision of the medical officer of health, and the incidence of malaria was less heavy than in 1922. The spleen-rate for the towns as a whole showed a decrease. The total number of births registered during 1923 was 25·1 per 1000 of the population, as against 28·0 per 1000 in 1922. The deaths in the same period were 17·7 per 1000, as against 29·0 per 1000 in 1922. The death-rate amongst infants under one year of age was 149·7 per 1000, as compared with 167·7 per 1000 in the previous year. The year generally was more healthy and the climatic conditions not so exhausting as in 1922. There were Government maintained or aided hospitals in operation in the six principal towns, and 16 rural medical officers, each with his headquarters and a Government dispensary at a central station, worked among the village population. In addition there were eight branch dispensaries in operation. The hospital recently constructed at Limasol was opened in February and is now in full operation. Over 900 patients were admitted to the Central Hospital at Nicosia, which is fitted with 56 beds, and the out-patients numbered about 8200; 130 surgical operations were performed. More than 17,000 persons obtained relief at the rural dispensaries. At the close of the year 105 inmates were detained at the lunatic asylum. The number of lepers in the leper farm at the end of the year showed an increase to 75, as against 69 in 1922. There were 13 admissions to the farm, as compared with 5 in the previous year. This increase is largely attributable to the fact that patients are voluntarily presenting themselves for treatment in consequence of the excellent results that have been attained by the use of chaulmoogra oil and preparations of antimony. Leprosy in Cyprus is now well under control and hopes are entertained that it may be possible in time to entirely eradicate it from the island. The number of children at the close of the year in the home for the healthy children of lepers was 10, all of whom remained free from any sign of the disease. The climate of Cyprus is, generally speaking, temperate and healthy, though the excessive heat of the plains during the summer is trying to Europeans. The heat is, however, dry, except on the coast, while the winters are cold and invigorating. The absolute mean temperature for the year at Nicosia was 67° F., the mean maximum temperature 78·80°, and the mean minimum 55·20°. The highest shade temperature recorded was 106° and the lowest 34°, showing a range of 72°, the maximum and minimum recorded during the previous 15 years having been 110° and 26° respectively. The rainfall for the last 10 years has averaged 19·08 inches per annum. The experience of the last decade would seem to show that the climate tends slowly, but surely, to change. While the excessive heat in the plains continues to prevail during mid-summer, the winters are damper and colder, and late rains not infrequently fall, a circumstance attributable principally to the conservation and extension of the island's forests. Several earthquake shocks, the majority of a slight character, were felt at Limasol, particularly during the month of September, while one was also felt at Nicosia.

DONATIONS AND BEQUESTS.

Mrs. Jane Elizabeth Shaw, Sheffield, who left property of the value of £37,068, bequeathed £600 to the Sheffield Royal Hospital to endow a cot in the Children's Ward, and £1000 to the Salvation Army. After fulfilment of certain other bequests she left the residue of her property to the Sheffield Royal Hospital, the National Protestant Church League, the Sheffield Pawnbrokers' Pension Fund, the Sheffield Blind Institution, and the Jessop Hospital, Sheffield.—Mrs. Julia Grace Hulke, widow of John Whitaker Hulke, F.R.S., sometime President of the Royal College of Surgeons of England, left unsettled property valued £18,923, of which £18,171 is net personalty. The testatrix, after providing for bequests of about £8000, gave the residue of her property, and also that over which she had power of appointment under the trusts of her marriage settlement to the governors of Middlesex Hospital for their convalescent home at Clacton-on-Sea, on condition that it be called the Hulke Endowed Convalescent Home. If it be not so named, the residue is to go to the governors for founding and towards maintaining a home for incurables in connexion with the hospital, to be called the Hulke Home for Incurables.—Mr. Edward Philips Thomson, Whitchurch, formerly of Liverpool, left £1000 each to the Liverpool Royal Infirmary, the Royal Southern Hospital, the Children's Infirmary, Liverpool, and the Epileptic Hospital, Maghull; also £100 each to the Salop Infirmary and the Salop Eye and Ear Infirmary. He also left £2000 to Dr. Arthur M. Watkins, of Whitchurch, and £500 each to Dr. Peter Davidson, Liverpool, and Dr. Charles H. Shears, of Hydehill, Dartmouth.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE.

West London Hospital, Hammersmith, W.

MONDAY, Dec. 22nd.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.

TUESDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients. 2 P.M., Dr. Dowling: Skin Dept.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

An Address

ON

SOME PHENOMENA COUNTERFEITING ORGANIC HEART DISEASE.

Delivered before the Derby Medical Society

By CAREY F. COOMBS, M.D., F.R.C.P. Lond.,
PHYSICIAN (WITH CHARGE OF OUT-PATIENTS), BRISTOL GENERAL HOSPITAL.

In moments of depression I have been tempted to describe the work of a consulting physician as divisible into two parts: he is concerned either with breaking it to patients that there is nothing to be done for them, or with persuading them that there is nothing the matter with them. Even if the first category be more or less hypothetical, the second is actual, and if one's lot in life be cast among the cardiologists, a large part of it is devoted to such patients.

There are several reasons for this. In the first place, abnormal cardiac sensations carry with them an ominous flavour. A deep-rooted instinct tells the patient "Your heart is working wrongly." Then again, the public is convinced that heart disease means sudden death. Finally, certain of the symptoms and signs of cardiac disease have their imitators, and it is easy to fall into an error and to confirm in the patient's mind his direst fears, even when there is no real foundation for them. It is to some of these pitfalls that I wish to direct attention.

Perhaps we do not always realise how great an impression a diagnosis of heart disease makes on the patient. To many it is tantamount to sentence of death, and even if you should explain that there are forms of heart disease which are compatible with long and active life the patient is apt to discount your explanation on the ground that you only tell him this kind of story to let him down gently. Over the man who has been told that his heart is unsound a dark shadow hangs, a shadow that it is much easier to invoke than to dispel. Clearly, then, a diagnosis of cardiac disease is not to be made lightly or unadvisedly.

But it is not only the sin of commission of which we are guilty. Often a mere failure to say decisively to a patient "There is nothing wrong with your heart," is enough to leave him rooted in a conviction that something is wrong, and if the doctor, feeling himself on insecure ground and not sure about the absence or presence of a cardiac lesion, should allow himself to say something vague about a "weak heart," irremediable harm is done. We must, I think, school our minds to a certain decisiveness in this matter of diagnosing heart disease, and to an abhorrence of the practice of playing for safety at the expense of the patient's peace of mind. And one essential ingredient in this spirit of decisiveness is a confidence born of the knowledge that, though certain pitfalls have attended the path of diagnosis, those pitfalls have been foreseen and therefore avoided.

MISLEADING SYMPTOMS.

Fainting.—One misbelief that is commonly met among the laity is that fainting is a prominent symptom of cardiac disease. You will agree with me, I think, that apart from the very rare Adams-Stokes syndrome, in which syncopal or epileptiform attacks arise as a result of cardiac pauses and cerebral anæmia, fainting attacks are almost unknown as a feature of cardiac disease. Many of the persons who "faint" are in reality suffering from minor epilepsy, and you must all of you have been compelled to give this explanation to an anxious mother asking whether her child's heart is sound. Others, again, are suffering from a combination of circumstances which may induce such a pitch of cerebral anæmia as to cause a "faint"; a combination of slow pulse with low blood pressure. Most often it is seen in adolescents, especially in those with vagotonia—i.e., with a vagus which is over-effective as a break on the speed of the heart beat. Quite often, too, persons who have attacks of giddiness resulting from disease of the labyrinth miscall those attacks "fainting," and ask themselves whether they may not be the victims of heart disease.

Cardiac Pain, True and False.—"Pain over the heart" is also a symptom that causes much needless distress. Often it is flatulent dyspepsia; sometimes it is parietal pain; but if it is actually over the heart, or rather over that place where the "man in the street" believes his heart to be—somewhere below and to the outer side of the left nipple—it is almost certain that the pain is not cardiac. True cardiac pain is far more often mesial than lateral. Again, whereas the false cardiac pain often bears no definite relation to exercise, true cardiac pain can always be connected—at some time or other at least—with exertion. Moreover, there is a constrictive or oppressive character about most cardiac pains that is highly suggestive, and if this is wanting from the picture one should be chary of ascribing the pain to cardiac disease.

Palpitation is another sensation to which the mind of the patient attaches undue importance. By far the commonest cause of this symptom is tachycardia of the nervous type. In treating patients with this disorder—the civilian counterpart of the "D.A.H." syndrome with which the war and its aftermath have made us so familiar—I do not feel that our duty is quite at an end when we have assured them of the absence of organic disease. We are more likely to effect lasting good if we can tell the patient what is the cause of his symptoms. But even where the actual cause of this visceral neurosis cannot be found, much good is often done if one can, with a confidence that is visible in the expression of one's face and audible in the tone of one's voice, say that the heart is free from disease. This alone, by brushing away the fear of death that is implied in the layman's view of heart disease, may so far reduce his mental perturbations as to relieve him sensibly of his tachycardia.

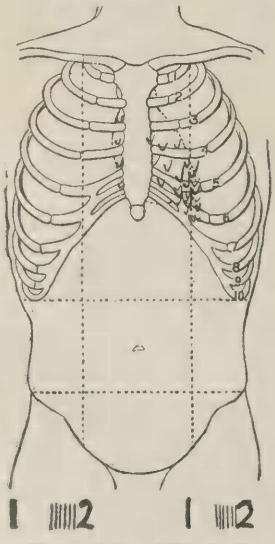
ARRHYTHMIAS.

But if we are to speak with confidence such as this, we must be sure of our facts. There are certain abnormalities that are of no importance, and it is our failure to discriminate between these and those that are of importance that leads to indecision and actual error. Let us first look at the various kinds of arrhythmia. I know we are told that if we are to decide with confidence whether the arrhythmia in a given case is important or not we must fortify ourselves with graphic records, gained by the use of the polygraph or the electrocardiograph. This is a counsel of perfection. Few have time or money enough to use these methods as a matter of routine, and it is clear that if a knowledge of the different kinds of arrhythmia is to become general—as it should—it must be by means less difficult to apply. My own belief is that in nearly all cases of arrhythmia it is possible, by feeling the pulse, watching the jugular vein, and listening to the heart's sounds (not necessarily all at once), to gain the requisite information, and on the basis of that information to separate the various types of irregularity from one another. Let us see whether this plan can be applied to those abnormalities of rhythm which may mislead the observer into a diagnosis of morbus cordis. Perhaps the commonest of these is the sinus arrhythmia of childhood and adolescence. Now, in the first place, it is well to recollect that a really regular pulse is almost unknown in children under 10. The heart beats irregularly at this age because the vago-sympathetic balance that determines the speed of the heart is so easily got at; it is affected by mere normal respiration, by the mildest of psychical influences, and reflexly by all sorts of afferent impulses. All these disturbances are continually plucking at the cardiac controls of the child and the adolescent, so that it is not to be wondered at that the rate of the heart should wobble a good deal at these ages, as indeed it does throughout life in many people. And when this wobbling is very pronounced, an irregularity in the pulse which may be mistaken for a sign of disease is the result. But if we watch it carefully we note that it is not an absolutely continuous arrhythmia; there are periods of regular beating from time to time. And the irregularity itself displays a kind of plan; the pulse speeds up and slows down in an orderly manner, and these changes in speed can often be traced to the effect of the respiratory act, so that the arrhythmia is clearly physiological and not pathological. Add to this the fact that the normal double flick can be seen in the jugular vein with each beat of the heart, and you have strong reasons for saying "The whole heart participates in this irregularity, which is therefore impressed on the heart from without and not caused by disease within the heart itself." That this supposition is true will be confirmed in almost every instance by an examination of the heart, which will show no signs of organic disease. Indeed, it would be a safe plan to ignore all arrhythmias in children and adolescents unaccompanied by other signs of cardiac disease. One of the most confusing points about this kind of irregularity is its almost invariable presence in children convalescent from an acute illness, but the rule enunciated above still holds good here; unless there are other symptoms and signs of cardiac disease, irregularity of the pulse in a child is physiological and of no diagnostic import.

THE PREMATURE BEAT.

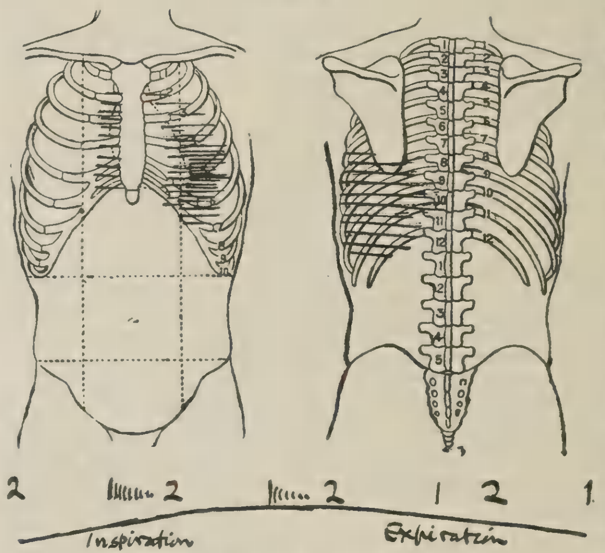
Another kind of irregularity which often makes a great impression on the mind of the patient is the premature beat. Nobody knows how and why such beats arise, but clinical experience proves that they may nearly always be ignored so far as prognosis is concerned, and that, as a rule, it is better not to attempt to treat them, as this only stamps on the patient's mind a belief in their significance. In elderly persons they are very often met with; in younger persons less often, and in both they may or may not coincide with signs of cardiac disease. In the absence of other signs of cardiac disease the patient should be encouraged to ignore them; and even when they occur in persons with cardiac disease they add nothing to the gravity of the prognosis. It is important to be confident of this, for patients are greatly troubled by them. They describe their sensations in various ways. Some are impressed by the feeble beat, the sense of cardiac pause; others by the big thumping beat that follows after the pause. They get into the habit of waiting for these sensations, and from this they pass to a constant feeling of pulses and counting of beats, and so to a distressing kind of hypochondriasis, which is aggravated if the doctor lets himself appear in the least impressed by the alteration of rhythm. The arrhythmia is of a kind so easy to recognise that there is no room for uncertainty about it. The finger on the pulse detects pauses between the normal beats; sometimes the little premature beat that is responsible for the pauses between the full beats is too small to be felt at the wrist, sometimes it is clearly perceptible. When it is perceptible, it is recognised as a little kick that the pulse gives at a short interval—an abnormally short interval—after a normal beat. The heart sounds that accompany this little beat are also heard to follow, at a very short interval, those of the last normal cycle; and they are often very subdued sounds, barely audible, as if they repeated in a hurried whisper the sounds that the last full heart-beat had just spoken aloud. Often these premature beats occur regularly after every second, third, or fourth beat; even so, it should be noted that the "dominant rhythm"—the regular rhythm of the heart—remains. This is an irregularity that is only occasional, not complete or perpetual. This kind of irregularity—the premature beat or extrasystole—is also apt to cause a good deal of needless alarm when it presents itself in the shape of a missing of beats. The patient who feels his own pulse and finds that it drops beats from time to time is apt to fear all sorts of evil. Yet, nine times out of ten, the "dropped" beat is not really dropped. The gap is due to a premature heart-beat (too small to send a wave to the wrist) with the pause that follows it. That this is so can practically always be proved by listening to the heart sounds and feeling the pulse at the wrist at the same time. The gaps in the latter will be found to coincide with premature beats, just audible at the apex of the heart. If there is any doubt as to these facts, it is well to check them by graphic methods, and one is then in a position to say to the patient, with the necessary confidence, that the irregularity is of no consequence. (Fig. 1.)

FIG. 1.



F., aged 55. Occasional premature beats.

FIG. 2.



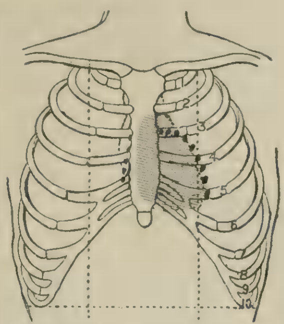
Cardio-respiratory murmur.

THE MEANING OF MURMURS.

Mistakes in cardiac diagnosis are, like all other mistakes, from that of our first parents onwards, a series of downward steps. The first step is made by the patient, who attaches undue importance to some abnormal cardiac sensation. The responsibility for the next is, perhaps, shared by patient and doctor; some departure from the natural rhythm is detected, and the doctor's confidence in the patient's health—already shaken by a history impregnated with the air of tragedy—is still further undermined. But for the last step of all, which causes words to be spoken that can never be unsaid, the doctor is often solely responsible; and that last step is the discovery, or rather the misreading, of a murmur. This is the "facilis descensus" that leads so many innocent victims into the slough of invalidism; and often the final irrecoverable plunge is precipitated by this unhappy propensity of ours to be stricken with panic in the presence of a murmur. If we had been taught, more emphatically than most of us were, that of the murmurs heard over the heart a minority only are due to cardiac disease, it would perhaps have engendered in us a more cautious attitude towards murmurs in general. What we ought to do is to say to ourselves, "What is the cause of this murmur?" before jumping hastily to the conclusion that the cause must necessarily lie within the heart. The need for these reflections will be best illustrated, perhaps, by a consideration of those murmurs which most often lead to error—namely, systolic murmurs in the region of the maximum heart-beat.

Cardio-respiratory Murmurs.—I suppose the commonest kind of systolic murmur heard over the apex-beat of the heart is that which is variously described as cardio-pulmonary or cardio-respiratory. If you are on the look-out for this it is astonishing how often you come across it. The characteristic facts about it are its blowing or whiffing character, its very obvious increase in intensity during or at the end of inspiration, with a corresponding tendency to disappear during expiration, and its liability to disappear altogether, or, at all events, diminish in intensity when the patient lies down. Often it is heard along both the right and the left borders of the heart and below the angle of the left scapula behind. It is most readily detected when the pulse is quick, as, for instance, during nervous excitement or in pulmonary tuberculosis. Most probably it is a kind of pleuro-pericardial friction. What we are concerned with here is to recollect that so far as the state of the heart is concerned it has no significance whatever. (Fig. 2.)

FIG. 3.



General systolic murmur. Boy, aged 9. Fever 100–102° F. for 14 days. Abdominal pain.

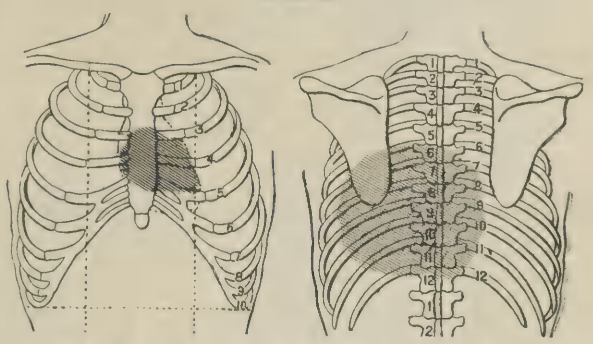
There is a tradition that if a systolic murmur heard at the mitral area is also audible below the angle of the left scapula, it is organic in origin. This is not true. The cardio-respiratory murmur is also heard very often in this area. In fact, I should be tempted to say that the fact that a murmur is heard at this spot is evidence against rather than for its organic origin.

Exocardial Squeaks.—There is another class of abnormal sounds not very different from the cardio-respiratory murmur in that they also vary widely with posture and respiration, and are also due to some abnormality outside the heart. These sounds are harsh squeaks, heard for the most part at or internal to the maximum impulse, and varying with extraordinary suddenness according to the conditions under which the patient is being examined. Both these kinds of abnormal sounds, being exocardial in origin, have nothing to do with cardiac disease, and should simply be ignored.

Hæmic Murmurs.—A third imitation of mitral disease is sometimes afforded by those murmurs which are grouped together under the name "hæmic." A recent example of this was seen in a boy of 9 who had continued fever, and of whom it was feared that he might be developing a cardiac lesion. But it proved on examination that his systolic murmur was heard with equal intensity at all parts of the præcordium, and we argued that as this murmur was so general in distribution it must be due to some cause which also was generally distributed; that is, to the toxæmia, probably tuberculous, which was also responsible for his fever. (Fig. 3.)

The Murmur of Patent Interventricular Septum.—One other kind of murmur that is sometimes mistaken for that of mitral incompetence is that systolic murmur which is heard with greatest intensity, not at the point of maximum impulse, but rather at the inner end of the fourth left interspace. In a number of individuals I believe that this murmur is due to a patency of the interventricular septum. In such cases the murmur is loud at its point of maximum intensity, but if you follow it away from that area in either direction, you pass suddenly to a point at which it is inaudible. If it should be accompanied by symptoms or signs of other congenital defect diagnosis is easy; but what I am more particularly thinking of is the class of case in which this murmur is the only evidence of anything abnormal, and what I am constrained to suggest at this point is that we must be careful not to be led astray into a diagnosis of acquired cardiac disease by the unsupported testimony of such a sound as this. (Fig. 4.)

FIG. 4.



Central systolic murmur. Probably due to congenital imperfection of septum ventriculorum.

Now what is true of systolic murmurs at the apex is also true, though to a less extent, of other murmurs. One or two examples of these may be alluded to before we come to general principles.

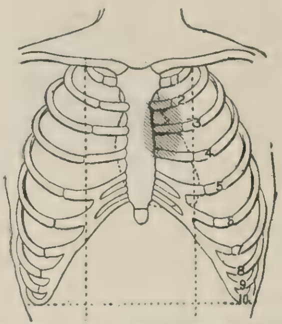
Presystolic Murmurs.—First, there is the imitation presystolic murmur sometimes heard over the impulse of the perfectly healthy heart when it is beating fast. To remember the possibility of such a thing is enough to enable one to avoid this mistake, particularly if it leads to an examination with the patient lying down. If it is a true presystolic murmur this will make it louder, if it is only a false one it will probably disappear.

Pulmonary Murmurs.—Systolic murmurs at the pulmonary area may cause difficulty in diagnosis, particularly during childhood, when there is a very natural tendency to ascribe them to congenital malformation. Sometimes, however, one comes across a murmur of this kind which is quite loud within a narrow circumscribed area and not to be heard in the back, or even as near to the area as just below the clavicle. These systolic murmurs localised to the immediate neighbourhood of the pulmonic area may often be found by careful examination to be due to surface conditions, such as retraction of the anterior border of the left lung resulting from pulmonary collapse. They are not cardiac at all, and are of almost no clinical importance. (Fig. 5.)

Subclavian Murmurs.—Speaking of these murmurs reminds me of another that I might well have forgotten, since it is not really a cardiac murmur at all, but it is one that many of you must have noticed, and that is the loud systolic murmur making a noise like an escaping jet of steam, which is sometimes heard below the outer half of the clavicle, the left oftener than the right. You may have noticed that murmurs of this kind are louder during inspiration, and that they are increased when the arm is abducted from the side. The exact mechanism of the production of such murmurs does not concern us here; it is enough for us to know that they are produced in the subclavian artery under perfectly normal conditions, and have nothing whatever to do with cardiac disease. (Fig. 6.)

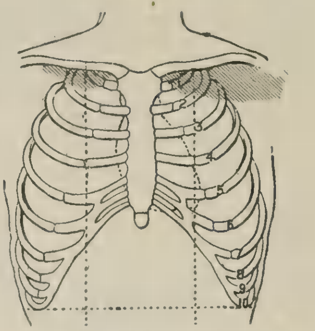
Venous Hum.—We are all familiar with the venous hum heard at the sterno-clavicular joints of the young child. At one time this murmur was regarded as a sign of enlargement of intra-thoracic lymph glands, but anyone who takes the trouble to carry out a systematic examination of a number of young children will soon convince himself that this idea is erroneous. It occurs in healthy as well as in unhealthy children, and my only reason for speaking of it here is that I have known it, when heard unusually low down in the chest, to simulate the to-and-fro murmur of aortic incompetence. I think it is a mistake one should be able to avoid, partly by noticing the essentially continuous character of the sound, which runs on from systole into diastole as these venous murmurs do, and partly also by observing the very pronounced effect exercised upon them by posture and respiration. (Fig. 7.)

Fig. 5.



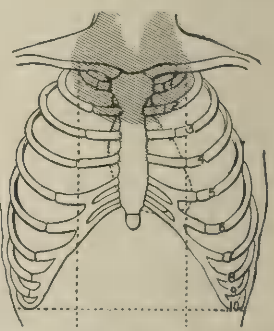
Imitation "pulmonary systolic" murmur of childhood.

Fig. 6.



Subclavian murmur.

Fig. 7.



Venous hum.

Rules for Cardiac Examination.

This brings me to one important principle in the examination of the heart—namely, that one should never be content with examining the patient standing up only. It is also necessary, and particularly in the studying of murmurs, that the effect of lying down should be noted. It is also always prudent, I think, to take the further precaution of listening to the heart with the patient lying over on the left side. By this means you may often detect a presystolic murmur which might otherwise have escaped notice.

Another general principle to which I think we should commit ourselves is that a diagnosis of cardiac disease should never be made on the strength of a single physical sign, unsupported by any other signs, or by any history of subjective symptoms. You may object that this would exclude from a diagnosis of cardiac disease many cases of aortic incompetence in which the only evidence of the lesion is to be found in a diastolic murmur. Yet I doubt whether there are any patients with this lesion who are entirely free from subjective symptoms. It is a rule that applies even more to the proper appreciation of the meaning of arrhythmia than to that of murmurs, and I am sure it is a safe rule to be very suspicious of a diagnosis of cardiac disease based on the presence of arrhythmia alone.

A third principle which may often save us from error is that of endeavouring to visualise the actual changes in structure and function that are responsible for the physical signs that we may encounter. Take, for example, the case of a patient with an irregular pulse; I feel certain many mistakes would be avoided if we said to ourselves in every such instance, "In what part of the cardiac apparatus is the rhythm upset, and what function is it that is at fault?" A practice of this kind has this to commend itself, that it not only enables the observer to avoid individual mistakes, but that it also ingrains in his mind those principles of normal and morbid physiology on which the study of cardiac irregularities is based.

Now, if we were to practise these principles in everyday examinations of the heart, it is clear that it would take time; and the taking of time is a condition of practice that is not always easy to realise. Our masters, the public, are anxious that we should hurry up and get the maximum amount done in the minimum time. That this is a short-sighted policy from a national point of view was shown by our experiences during recruiting. The nation, having decided that recruiting should be done in a hurry, is surprised that that work was not done particularly well. It is true that it might have been done better, and nowhere was this more apparent than in our failure to distinguish between the real and the counterfeit in the matter of cardiac disease. Many of you must have seen, as I did, people passed as fit for military service who had serious organic disease of the heart. But this was as nothing compared with the hosts of those who, though perfectly fit for military service, were debarred from it by diagnoses of cardiac disease which ought not to have been made, and which would not have been made if it had been possible to give more time to the recruiting examination. So far as I have been able to judge, these hasty diagnoses of cardiac disease were in most instances founded on the discovery of a murmur, or of some form of irregular action, which a more leisurely examination would have shown to be unimportant in type and origin.

Risks of Mistaken Diagnosis.

Before I bring these somewhat desultory observations to a close, I may be able to express them in a more compact form by relating some of the circumstances under which we find ourselves in danger of making a diagnosis of cardiac disease where no such disease exists. First, there is the case of the child convalescent from some acute illness, such as bronchopneumonia. Under these circumstances we are, not unnaturally, and indeed rightly, on the look out for evidences of injury to the cardiac muscle. Often the state of anæmia which has been established by the causal infection is pronounced enough to produce a generalised systolic murmur of the "hæmic" type; and this, if it is joined with pronounced arrhythmia of the sinus type—as it often is—may tempt us to a diagnosis of myocardial disease and to a long period of unnecessary rest, injurious alike to body and mind.

The next case is that of the adolescent, more often a boy than a girl in my experience, who is found to have a fast and irregular pulse, with a banging cardiac impulse, and an unusually wide swing between the systolic and diastolic blood pressures. Usually he is tall and slender, having grown rapidly; and the afternoon urine often contains a trace of albumin absent from the morning specimen. Sometimes there is added to this counterfeit of cardiac disease a murmur, either of the cardio-respiratory kind found near the apex-beat or else general and "hæmic" in type. If we mistake these phenomena for evidences of cardiac disease and impose on the patient restriction from games and exercise, we are doing him actual harm by diverting body and mind into less wholesome channels.

The grown man, also, is not exempt from the danger of a mistaken diagnosis. The kind of case that is in my mind is that of a man who, while doing something laborious—for example, lifting a heavy weight—gets a pain in the left side of his chest. This pain returns when he gets home in the evening, and either at once or on the following day he sees his doctor. The pulse is quick and the beat of the heart forcible, and on these inadequate grounds a diagnosis of cardiac strain is made. Please observe that I do not ask you to agree that cardiac overstrain never occurs under such conditions. One man whom I saw quite definitely developed the total arrhythmia of auricular failure as a result of such a stress; and signs of aortic incompetence have been known to appear after a strain in persons previously innocent of any such lesion. In both of these cases, however, it is probable that cardiac disease in a latent form antedated the accident; in the familiar terminology of the Ministry of Pensions, the lesion is "aggravated," not "attributable." But this is a very different matter from the kind of case of which I was speaking before, in which, on the basis of a vague pain and a quick pulse, it is claimed that a previously healthy man has "strained his heart." It would not matter so much if the error were not magnified and exaggerated by the question of compensation, until return to work becomes quite impossible. What happens is this: The man is frightened in the first place by the thought that his heart is damaged, and this fear accelerates his heart. The quick beating confirms his fears, and from that time he looks forward to a return to his labours with the keenest apprehension, believing that it will be too much for him and cause him to drop dead. This continual atmosphere of apprehension increases and perpetuates the tachycardia, and so the vicious circle goes on until the man is an incurable ergophobiac. If he is young and without dependents it may be possible to persuade him, through the medium of remedial exercises and other forms of suggestion, that he can safely return to work; but if he is over 40 cure is well-nigh impossible, and in any case the compensation controversy will very soon succeed in arousing in the man's mind a spirit of resentment which makes him impervious to all talk of cure and return to work. The only way to avoid this tangle is to do all we can to prevent mistaken diagnoses of "cardiac strain" being made in the first instance. It is easy to agree openly with the man's fears, or to adopt a non-committal attitude, and difficult to take the risk of being wrong, and to say "*No;* your heart is quite all right, and you can safely return to work." Yet this course may perhaps save a man from permanent and distressing invalidism, and the risk is therefore worth taking.

TYPES WHERE ERROR ARISES.

Women at the menopause are notoriously prone to develop all kinds of visceral disturbances with corresponding subjective sensations. Among these is acceleration of the heart felt by the patient as palpitation, but extracardiac in origin and therefore of no significance as evidence of cardiac disease. A few days ago I came across a patient of this kind who had at the apex of the heart a systolic sound so like a murmur that at first I was in danger of writing it down as a sign of disease. This was heard while she stood up, but when she lay down it disappeared altogether, proving that it was exocardial and therefore without significance.

The only other example I have to offer is that of the elderly patient with frequent premature beats. Of these he is miserably conscious, either because of the apparent dropping of pulse-beats at the wrist, or because of the halt, followed by an abnormally forcible impulse, which makes him feel as if his heart had turned over, to use his own expressive phrase. Now, it is hard enough for any man to ignore these disturbances, and his only chance of doing so lies in mental pre-occupation. It is sometimes difficult to persuade him of his fitness for work, and if he is allowed to retire from business on account of his cardiac condition he will inevitably become worse; in trying to save his life he will lose it.

All these examples of difficulty in diagnosis must be familiar to every one of you, and it may be that in rehearsing them before you I have been guilty of wasting your time. My sole excuse for doing so must be that it has appeared to me that, at a time when we are taking more pains than ever before to make early diagnoses of cardiac disease, we must take equal pains to avoid diagnoses of disease where no disease exists.

PULMONARY TUBERCULOSIS IN CHILDHOOD.*

THE CLINICAL VARIETIES, DIAGNOSIS, AND PROGNOSIS, WITH AN ANALYSIS OF 165 CASES.

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IT is generally accepted that tuberculosis of the adult is usually a reactivation of an infection in childhood; in this the child is truly father to the man. Consequently all efforts at prevention should begin in childhood. At that period the disease is usually curable, and the resulting immunity often ensures a lasting protection for life. Tuberculosis in many respects resembles another chronic infection of mankind—e.g., syphilis. In both there is a primary focus of infection constituting the first stage—cf. the primary lung focus of Ghon corresponding with the chancre; then in a short time involvement of the lymphatic system and spread of the organism throughout the body take place—the secondary stage; at a later period, and often years afterwards, destruction of the tissues takes place in both. We realise the importance of treating syphilis in the earliest stages, and for the same reason tuberculosis ought to be treated actively in childhood.

Type of Bacilli Present.

Pulmonary tuberculosis, which is the main source of infection for all other kinds of tubercle, is in the great majority of cases due to tubercle bacilli of the human type which enter the tissues through the respiratory passages. Bovine bacilli are rarely found in the sputum. A. S. Griffith,[1] in 1914, collected the investigations into the type of tubercle bacilli found in 938 cases by various workers; in 932 cases human tubercle bacilli were found in the sputum, 4 showed bovine bacilli, and 2 mixed strains. Investigation of the lung tissues themselves have not been numerous. The Royal Commission on Tuberculosis[2] examined the lungs of 14 cases of primary pulmonary tuberculosis and in each case only bacilli of the human type were found.

In young children it is not so uncommon for the lungs to be infected with bovine bacilli. Here the pulmonary disease is usually part of a widely-spread infection, and there may be caseation of the mesenteric glands, tubercles on the peritoneum, or ulceration of the intestine which show the origin to have been via the intestine. Cobbett[3] collected the investigations as to the lung tissues in 65 children dying from pulmonary tuberculosis; of these 61 showed human tubercle bacilli; four showed bovine, of which one was found in the lung, two in the bronchial glands, and one in the mesenteric glands.

Primary tuberculosis of the bronchial glands is nearly always caused by the human tubercle bacillus. Cobbett again collected 18 cases investigated by various workers, of which only one showed the bovine tubercle bacillus. He also summarises the results of 63 cases of generalised tuberculosis, excluding meningitis, which had been investigated by the Royal Commission and others; 10 of these, or 16 per cent., yielded bacilli of the bovine type, and they were usually in children under 5 years of age—leaving 84 per cent. due to the human tubercle bacillus. These investigations are of the greatest importance, for the constant presence of human tubercle bacilli in cases of pulmonary and bronchial gland tuberculosis is strong evidence that infection occurs from human sources, and infection through milk or food with the bovine tubercle bacillus is relatively uncommon.

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* A paper read before the Derby Medical Society.

We may distinguish three main varieties of pulmonary tuberculosis in children corresponding to the pathological types of miliary, fibroid, and fibrocaseous disease. Clinically they are often termed: (i.) Acute, general or infantile; (ii.) hilum or juvenile tuberculosis; and (iii.) adult types.

Features of Pulmonary Tuberculosis in Infancy.

Tuberculosis in infancy runs a course like that of an acute infectious fever, with a marked tendency to generalisation somewhat resembling inoculation tuberculosis in animals. Infection seems rapid and easy, the bacilli reproduce quickly, and are carried by the blood-stream throughout the whole body. The disease runs a rapid and usually fatal course. On post-mortem examination the disease is widely distributed through the body. The bronchial glands are invariably involved and caseous, with disease spreading outwards from the roots to the periphery—both apex and base being affected. In the first year of life there is little tendency for the lesion to heal. Progressive caseation occurs, then dissemination, and miliary tuberculosis or meningitis is a frequent termination. Goodhart and Still[4] found that tuberculous meningitis was present in 114 cases out of 238 deaths of tuberculous children—i.e., nearly 50 per cent. It is the actual cause of death in nearly half the cases of tuberculosis in childhood.

Tuberculosis is more fatal in infancy than at any other age, and most fatal in the latter half of the first year and during the second year. The high mortality in infancy does not by any means represent the total number of deaths, for many deaths certified as due to bronchitis or pneumonia are really due to tubercle. It is highly significant that the death-rate from bronchitis in the United States of America is only one-seventh of the English rate—13 per 100,000 as against 89 per 100,000 in England.

Clinical Varieties.

General or Infantile Type.—The typical form is acute miliary tuberculosis caused by a hæmatogenous infection from an existing focus in the body, such as the bronchial or mesenteric glands. There occurs simultaneous deposition of bacilli in one or more organs with resulting miliary tubercles in such numbers as to produce a fatal toxæmia before the lesion has developed beyond the miliary stage. The tubercles will be in the same stage of development and approximately the same size. It can scarcely be doubted that small numbers of tubercle bacilli are often transferred by the blood and lymphatics to other parts of the body without setting up foci of disease. This depends upon the protecting forces of the body called into action, but the victim of miliary or generalised tuberculosis is incapable of developing this resistance or is overwhelmed by an excessive or virulent infection.

Acute miliary tuberculosis of the lungs is a striking picture, and the physical signs do not give an adequate idea of the disease. Both lungs may be studded with miliary tubercles and yet physical examination show only local or general bronchitis. The early symptoms are due to toxæmia. There is wasting, prostration, marked dyspnœa and cyanosis, slight cough and irregular temperature, slight at first, later with high range from 100° to 103° F. The physical signs are those of bronchitis, and gradually the clinical picture may merge into that of meningitis. As the disease progresses there may be tubercles on the choroid, and enlargement of the liver and spleen. In older children and adults the illness may closely resemble typhoid fever with delirium, enlarged spleen, tympanites, and a high temperature. A radiograph shows that tubercles scattered uniformly through the lung may be distinctly visible.

In generalised tuberculosis the lesions have advanced for the most part beyond the miliary stage, and the clinical picture is then dominated by disease of the organs showing the greatest involvement. A sub-variety—frequently unrecognised—is tuberculous bronchitis, seen in infants under 5 years of age, especially in homes where there is an open case of pulmonary tuberculosis. The history may show a period of depreciated health; the physical signs are persistent bronchitis which does not clear up, cough which may be "brassy," and irregular persistent temperature. The diagnosis is difficult. A positive von Pirquet reaction under 2 years of age is valuable. The finding of tubercle bacilli in the sputum would clinch the diagnosis. The signs gradually merge into those of caseous pneumonia or miliary tuberculosis with a fatal result.

Tuberculous Broncho-pneumonia or Caseous Pneumonia.—This is probably the most common form of pulmonary tuberculosis in infancy. It may occur as an acute disease, at first closely resembling an ordinary pneumonia. It may follow a tuberculous bronchitis, it may occur in the progress of abdominal tuberculosis, or it may come in the wake of the acute infections such as measles, whooping-cough, influenza, or typhoid fever in feeble and unhealthy children. Under 7 or 8 years of age it is rare to find any tendency to limitation by fibrosis. The caseous areas vary in size and number; they are often found in the lower portion of the upper lobes. A whole lobe, on the other hand, may be invaded. The pleura is always involved. Occasional cavitation is found, and more rarely, large cavities.

The symptoms begin like a broncho-pneumonia, except that the onset is more gradual. Cough is an early and constant symptom. Sputum can rarely be got unless the child is over 5 or 6 years of age, but the pharynx may be tickled with a cotton swab and the sputum caught as it is coughed up. Dyspnœa and cyanosis become prominent features as the disease progresses, and this at a time when an ordinary pneumonia ought to improve. The temperature is irregular and persistent. Anorexia is present, and vomiting and diarrhœa are common later on. There is a rapid loss of weight, and slight enlargement of the liver and spleen may be detected. There may be severe albuminuria and hæmaturia indicating involvement of the kidneys. The physical signs resemble broncho-pneumonia. Râles are heard generally, especially round the roots and in front of the chest. There will be scattered patches of consolidation. If a whole lobe becomes caseous the breath sounds will be greatly diminished over part of one lung. In infants this variety is usually fatal in one to four months. In older children the caseous process may become limited by fibrosis and assume a chronic form. Such cases resemble closely the chronic forms of non-tuberculous pneumonia, especially the streptococcal type.

A radiograph shows the hilum shadows to be increased in size. The whole field of both lungs is dotted with rounded, sharply defined areas of opacity of the same size and equally distributed. Later on these areas may coalesce when large dense shadows are produced. It must be remembered there is no clear demarcation between these varieties of acute tuberculosis in infancy; a case may die in the miliary stage or it may progress into the broncho-pneumonic. In all a shower of tubercle bacilli has been scattered by the blood-stream over the body and bacilli may be present in all the organs. The physical signs depend on the duration of the disease and the stage the tubercles have reached.

Pulmonary Tuberculosis in School-children.

When the child reaches school age the disease enters on a new phase. It now passes into more latent and chronic forms, with a lower death-rate between the ages of 5 and 15 than at any other period of life.

The common form is now a benign and latent glandular infection contracted in infancy. We know that nearly all town-bred children are infected with the tubercle bacillus, and by the age of 15 anything from 60 to 90 per cent. of the population in large communities give a positive von Pirquet's test.

Paths of Infection.

Careful investigations have been carried out by Kuss, Allbrecht, and Anthony Ghon[5] into the channels of infection in childhood, originating through inhalation. The primary focus Kuss believed to be a small tubercle usually situated subpleurally, but often intraparenchymatous. Usually only one primary focus exists, and the size varies from a pinhead to a hazel nut; it is well defined, often enclosed in a fibrous capsule, and consists of dry and hard or soft caseous masses. The lymphatic bronchial glands draining the area in which the lung focus originates nearly always become tuberculous, but these cannot usually arrest the bacilli, and infection progresses to the lymphatic glands in the mediastinum. These latter are the first barrier against the progress of the infection. Kuss said this intrathoracic tuberculosis forms the first stage of the infection of the individual and usually remains passive. But the infection may spread further, and in time ends in a clinically recognisable form of tuberculosis in which the lungs are affected by a retrograde movement.

H. Albrecht, in 1909, studied the primary infection of the lung in a series of 1060 autopsies of tuberculous children. The primary infection he represented as an isolated focus usually round, of varying size, often caseous, and containing in the centre a thin fissure as a remnant of the caseous bronchioles. There was usually only one focus. The focus may appear in any part of the lobe, and by fresh tubercles at the periphery may attain to the size of a cherry or larger. Only in a small number of cases was he unable to find the primary infection. Corresponding to the primary infection are caseous tracheo-bronchial lymphatic glands which correspond to the side of the lung focus, or at least show more advanced lesions than on the other side. These results were further confirmed by Ghon, and they all claim that the primary infection of the lung is aerogenous. This view is not universally accepted, and there are many eminent investigators, such as Calmette, von Behring, among them, who believe that the usual channel of infection is through the intestine and mesenteric glands —i.e., that ingestion is more important than inhalation. Though infection may occur through this route it is most likely not of frequent occurrence, and the majority of workers think that tuberculosis of the bronchial glands is due to tubercle bacilli inhaled directly through the respiratory passages.

The primary lung focus gives rise to secondary infection of the thoracic glands, and usually the disease is arrested here. If the disease is confined to the thoracic glands there may be few, if any, physical signs and the symptoms become all-important. This infection usually covers a period of impaired health of from 12 to 18 months. It is benign, and nearly always ends in arrest and recovery. On the other hand, if immunity should be low, the disease spreads outwards, showing in a radiogram as mottling round the roots, gradually spreading further into the parenchyma of the lung. This is the condition we speak of as hilum tuberculosis and the French as "ganglion pulmonaire."

Hilum Tuberculosis.

General Symptoms.—There is exhaustion after light physical or mental effort. Children lose their activity and are disinclined for games. In the hospital class malnutrition is a striking feature. There is loss of weight, or there may be no gain in weight for long periods. The appetite is poor. Irritability and change of disposition is often marked. Night sweats may occur, but they are common in other diseases of childhood and may be due to deficient ventilation of the bedroom. In rickets sweating is confined chiefly to the head and neck and occurs shortly after the child goes to sleep; in active tuberculosis it occurs between 2 and 4 A.M. and may soak the bedclothes.

Cough.—Cough may be absent or very slight, especially in infants. It may be catarrhal, as in bronchial catarrh. It may be barking and dry like whooping-cough, attributable to pressure symptoms on the vagus or other structures. Cough by itself, however, is not of high significance, as it is so frequently due to the catarrhs of school life. There may be bronchitis. In a one-sided bronchitis tuberculosis suggests itself. Asthma is a rare complication. Attacks of slight dry pleurisy are frequent.

Temperature.—The normal temperature in children is subject to wider fluctuations than in adults—occasional rises to 100° may occur in health. One should not place much reliance on small rises of temperature. In older children the maximum temperature is reached earlier in the afternoon than in adults, and a fall of one or two degrees in the evening is characteristic. Continuous temperature over 100° should always arouse suspicion, but the absence of fever does not exclude tuberculosis.

History of Infection.—The tuberculous infant is found in a tuberculous family. It has been established in Paris that the infection of a child is nearly always due to contact with a tuberculous parent. A very brief exposure lasting only a few days is sufficient for the production of tuberculosis in the newly born. Debré and Léon Bernard say the only children to escape contagion are those who live less than six months with a tuberculous mother. A case of open tuberculosis in a household has a sinister influence upon all young life. In such homes infection occurs early; more than half of the children are estimated to be infected before they are a year old. Pollack in 1911 made interesting investigations into the fate of children living in tuberculous homes. He found that children infected during the first five years of life, if they survived, usually showed clinical signs of tuberculosis. Bergman in 1919 confirmed and supported this idea. He investigated thoroughly 233 tuberculous families, including 1004 children from birth upwards, and in one-third of these has traced them far up into adult life. His conclusions briefly are: Every one of the persons who had died of tuberculosis in childhood or adult life, and nine-tenths of those who were still living but suffered from clinical tuberculosis, had been exposed to infection within the first four years of life. On the other hand, not a single death from tuberculosis could be found among those whose exposure to tuberculous infection had been deferred until after the fourth year. Further, not one case of clinically demonstrable tuberculosis in any form could be found amongst those whose exposure to infection had been deferred till after the seventh year of life. Of 698 persons who, in the first year of life, had lived in tuberculous surroundings, 277, or 40 per cent., had either died from tuberculosis or showed the disease in a clinical form.

Physical Examination.—Children suffering from tuberculosis of the thoracic glands are often of poor physique and delicate-looking, but children showing every indication of good health may suffer from disease of the bronchial glands. The fine and coarse types usually described have been made too much of. An overgrowth of soft, silky hair between the scapulæ and on the arm is often seen in septic conditions, and in children in whom no evidence of tuberculous disease can be found. Prominent or dilated veins on the front of the chest, usually on the right side, sometimes on both, have been noted. Spinal telangiectases centring round the first and second dorsal spines and attributed to pressure symptoms have been considered characteristic. The venous signs are all uncertain; they occur in pale, thin children, and in a large proportion of healthy children. General glandular enlargement or chains of glands running down the cervical region are usually tuberculous, but they occur in other infections and in rickets. Enlargement of the supraclavicular glands should be looked for, and if present suggests involvement of the apical pleura. Enlargement of the submaxillary and upper cervical glands is common in school-children, and occurs in diseases of the tonsils, teeth, and other inflammations of the skin and scalp caused by dirt. Enlargement of the mesenteric glands should be sought for; they are sometimes palpable just to the right of the umbilicus. Phlyctenular conjunctivitis is often seen in children infected with tubercle.

Percussion.—Riviere [6] says there is 1 cm. of normal impairment of resonance on each side of the sternum between the first and second ribs, which he calls the parasternal dullness, and believes that this may be increased up to as much as 4 or 5 cm. or 2 in. when disease of the thoracic glands is present. I have got no assistance in diagnosis from parasternal dullness. Increased paravertebral dullness is often found, and I look upon it as the most important percussion sign. The normal oval interspinous dullness extends about one inch on either side of the middle line between the spines of the first and fifth dorsal vertebræ, but it varies much in amount. In hilar disease the area is increased and may extend out to two inches or more. Enlargement of the area appears first on the right side corresponding with the greater enlargement of glands along the right bronchus. In more extensive disease the left interspinous dullness is also increased. When the disease spreads out from the hilum into the lung, resonance tends to be impaired towards the apices or bases. Krönig's area, which is so useful for the diagnosis of hilum tuberculosis in adults, is difficult to map out in young children owing to the smallness of the parts. After the age of 10 its width can be determined easily.

Auscultation.—The signs vary very much. There may be light bronchial breathing under the clavicles or at one or both sides of the upper vertebral spine. There may be harsh, rough, low-pitched, or jerky inspiration, or there may be weak breathing over the whole or part of a lung from pressure on a bronchus. The signs by auscultation are heard most distinctly in the posterior region. Fleeting, scattered, persistent crepitations may be heard around the nipple region. If infiltration spreads into the lung, closely set, moist crepitations may be heard at the bases.

D'Espine's Whisper Sign.—D'Espine [7] described it as a whispering echo following the spoken voice, and heard on auscultation over the upper dorsal spinous processes. He believed, too, that the bronchial character of the spoken voice did not normally extend below the seventh cervical spine. Of these two signs the whispering echo following the spoken voice is the earlier. The bifurcation of the trachea varies according to age. In infancy the trachea divides about the level of the first dorsal vertebræ, but by the age of 12 the division is opposite the fourth. In applying d'Espine's test a number may be whispered or spoken distinctly and is listened to either by the direct ear or the stethoscope. The characteristic tracheal sound may be heard downwards as far as the fifth or six dorsal vertebræ. Much [8] says that up to the seventh year the sign is heard normally to the seventh cervical spine, from 8 to 12 it reaches to the second dorsal spine, and after the age of 15 to the third dorsal spine. This sign is of considerable value, but is reputed to occur in cervical adenitis, chronic disease of the nose and tonsils.

Examination of the Sputum.—Infants and young children usually swallow their sputum, but it is not difficult to get a specimen from older children. It should always be sought for and an examination made by one of the concentration methods. The approximate number of bacilli seen in the whole film is then counted. The frequent association of positive results in the sputum of children showing clinical signs of pulmonary tuberculosis leaves no doubt in my mind that if acid-fast bacilli are found in the sputum, it means the tubercle bacillus.

It will be seen from the table that nearly 50 per cent of hilum tuberculosis cases showed the presence o tubercle bacilli at some time or other—either at th dispensary, the sanatorium, or both. I do not mea that you will find the bacillus in 50 per cent. of th hilum cases. Owing to the small number of bed available for children, the cases selected for treatmen in the sanatorium were for the most part definit cases with bacilli present. This accounts for the hig proportion. In an investigation by Stewart [9] dealin with 158 children at the City of Birmingha Sanatorium, Yardley-road, he found six positiv sputum results—i.e., 3·8 per cent.; while Holt, b tickling the pharynx with a piece of muslin held i a pressure forceps and wiping up the secretion durin the resulting cough, was able to demonstrate th tubercle bacillus in fully 80 per cent. of cases of lun disease in young children.

Radiography.—Screening or fluoroscopic examination of the chest is never sufficient—a radiogram mus be taken. After the examination of the sputum it i the most important aid to diagnosis. The thorax o the child permits penetration by X rays easily. U to the age of 5 the lung is pretty clean in a health child; later on the radiograph is shadowed with pas lesions. The hilar shadow produced by lymph glands bronchial tubes, blood-vessels, and connective tissu extends upwards to about the fifth rib posteriorly, an downwards till it crosses four ribs, its width and densit varying greatly in health. The lung fields show n markings in the outer zone, and in the young none i the middle zone.

The normal chest of the child should show (1) Translucent pulmonary fields with good illumination on deep inspiration; (2) proper movement of th ribs and diaphragm; (3) a radiogram with insignificant hilum opacities and at the outside only a fe radiating peribronchial striæ, accompanied by a trivia number of small and obsolete focal shadows.

The tracheo-bronchial glands when diseased for a shadow outside and parallel to the sternum, stretching from the clavicle down towards the hilum acros the posterior second, third, and fourth intercosta spaces. They may form a dense shadow showin within the lumpy rounded shadowing of caseou glands. They are most easily seen and most commo on the right side, as the aorta and other structure obscure the left hilum shadow. Enlarged bifurcatio glands are only visible in an oblique radiogram whic will show the trachea and its bifurcation. In th angle between them appears the shadow of th bifurcation glands. Riviere says this shadow i practically never absent, for the bifurcation gland are nearly invariably affected with tubercle. It i doubtful if tuberculous glands show radiographicall unless they have passed the stage of congestion an enlargement and have become caseous or calcareous

As soon as disease extends from the intrathoraci glands to the lungs infiltrating them, X rays show it presence. Hilum tuberculosis shows first as a increase in the size and opacity of the hilum shado then the edges become diffuse, cloudy, and indefinit There may be spread along the interlobar fissures an from these opacities shade into the clear parenchyma Striated or lamellated shadows following the contou of a lobe are important; usually these begin nea or at the hilus and radiate towards the peripher Advanced and extensive tuberculous disease is usuall easily photographed and interpreted.

Prognosis.—Hilum tuberculosis in children if confined to the thoracic glands is usually a benign diseas the activity covering a period of 12 to 18 month and nearly all cases recover. The infection is s mild that it is usually not recognised and must ofte cause little or no disturbance to health. It should b looked upon as an inevitable, and possibly a beneficen accompaniment of communal life. If we were n immunised in childhood we might die like primitiv races and American Indians. When glandular diseas spreads into the lung it extends slowly in children o school age, smouldering on for years, often unrecog ised, and waking into slight activity with each fresh atarrh. There is evidence accumulating that hilum uberculosis may develop in adolescence into the adult ype as we know it. The spread of tuberculous disease rom the hilum towards the upper lobes is often seen, nd its development can be recorded in a series of adiograms. I have seen not a few cases, suspected en years ago to be suffering from hilum tuberculosis, hich have reached the age of adolescence and died rom the ordinary adult type of disease. From this oint of view the average duration of the disease from afection to death may be put at 15 to 20 years.

lassification of Children suffering from Pulmonary Tuberculosis admitted to the Derbyshire Sanatorium between 1918 and 1923.

Age.	No. of cases.	T.B. in sputum.	Present condition.			Untraced or unrecorded.
			Quiescent or improved.	Worse.	Dead.	
			Hilum Tuberculosis.			
7	2	1	1	—	—	1
8	4	1	3	—	—	1
9	9	6	4	5	—	—
10	7	3	5	1	—	1
11	11	3	10	1	—	—
12	17	11	15	—	—	2
13	25	8	22	1	—	2
14	17	9	16	—	1	—
15	25	14	21	4	—	—
otal	117	56 (48 %)	97	12	1	7
			Adult Forms of Pulmonary Tuberculosis (including Lobar, Apical, &c.).			
8	1	—	—	—	1	—
9	1	1	—	1	—	—
10	2	2	—	—	2	—
11	3	3	2	1	—	—
12	5	3	3	—	1	1
13	13	11	7	3	3	—
14	13	10	4	—	8	1
15	10	7	5	2	3	—
otal	48	37 (77 %)	21	7	18	2

The table shows 117 cases of hilum tuberculosis ut of 165 cases admitted to the county sanatorium. fter an average period of two to three years there as been one death, and 12 cases were reported as orse. Gibson and Carroll[10] record 131 cases of intrahoracic tuberculosis, classifying them adult type 34, ivenile or hilus 74, tracheo-bronchial 23.

Adult Types.

These are not common before the age of 12, but ncreasingly frequent thereafter. They give little ifficulty in diagnosis, for the symptoms and signs losely resemble those found in adults. Involvement f the upper lobes is most frequent, and the right lung ore often than the left. There is toxæmia, impairment f resonance, bronchial breathing, crepitations at the pices or over a lower lobe, or extensive distribution eading to cavitation. Tubercle bacilli are usually resent in the sputum, and X ray examination will how the extent of the disease. Gibson and Carroll uote 34 cases of this type, with cavitation in 9 and ubercle bacilli in the sputum in 18 of these. My gures show 48 cases cf the adult type out of 165 dmitted to the county sanatorium; 37 had tubercle acilli present in the sputum, a percentage of 77. he youngest child I have seen showing this adult orm was 6 years of age. O'Brien and Ames[11] investiated clinically and radiographically 44 infants and hildren at the Boston Consumptive Hospital. They ound nine cases under 10 years of age suffering from hronic pulmonary tuberculosis of the adult type, and wo under 6 years of age. The prognosis in this form s serious; over a third of the children were dead ithin an average period of three years.

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BRONCHO-PULMONARY SPIROCHÆTOSIS.

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BRONCHO-PULMONARY spirochætosis was described for the first time by Castellani in 1904. He discovered the first cases among the natives of Ceylon. Shortly afterwards, Waters found similar cases in India and Jackson in the Philippines. In 1918 Violle described an epidemic of broncho-pulmonary spirochætosis which raged at Toulon. The first cases treated there were Chinese and Indo-Chinese, then Senegalese and the Malgachs; a month later some French patients were admitted to hospital for the same disease described by Violle as very contagious. At the end of 1919 Najib Farah described 10 out of many more cases of broncho-pulmonary spirochætosis studied by him in Egypt (at Alexandria).

Since 1904 observations have been published by Branch, Chalmers, Taylor, Phalen, O'Farell, Gali-Valerio, Simon and Raditch, Prengault and Mercier, Lurie, and others, and cases have occurred in Europe, in the Balearic Islands, on the shores of the Adriatic, in Switzerland, in Serbia, and in France. It is therefore not necessarily a tropical disease, as was thought at first, but one which can be met with in different climates and amongst various nations.

The disease, however, has been insufficiently investigated, and the observations hitherto published are contradictory on more than one point. Its importance, though, cannot be denied; it lies less largely than is thought in the fact that it has always been clinically confused with the pulmonary tuberculosis which it resembles in certain respects, but from which it differs by being susceptible of sure and rapid cure.

Symptoms and Signs.

Broncho-pulmonary spirochætosis is a disease provoked by the localisation in the respiratory tract of a spirochæte termed the spirochæte of Castellani. In acute cases we find fever, headaches, stiffness in the back and limbs, dry coughing, and sometimes hoarseness and retro-sternal pains. The examination of the chest shows signs of bronchitis with diffused sibilant and sometimes, in some areas, subcrepitating râles; sometimes, also, some slight dullness at a summit or base. The expectoration is mucous at the beginning, then muco-purulent, often with streaks of blood. Sometimes the sputum is completely bloody, and real hæmoptysis has also been met with.

The acute cases, considered as very contagious, have generally an incubation period of one to three days. The fever remains during four to five days at about 39° C., then the symptoms improve little by little and a cure ensues. In certain cases the disease prolongs itself for five or six weeks, and cases have been described with many relapses and a tendency to become chronic.

Castellani quotes a case which lasted six years, the patient having the aspect of cachectic tuberculosis. Of the ten cases described by Najib Farah eight were chronic. In two of them the disease had lasted eight and four years. Coughing began either acutely or insidiously, and in various degrees of severity. The expectoration varied in quantity and character in different patients. In seven cases the sputum was bloody and frequent hæmoptysis occurred. The temperature in the chronic cases was habitually normal

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or a little above it. In one instance there was hectic fever during 20 days. The physical signs were either null or else agreed more or less with those of the acute cases described by other authors.

Clinical Records.

I shall postpone until later my description of the pathogenic agent and pass now to my personal experience of cases.

The first was a young Egyptian girl, aged 18, whom I saw in 1921. She had been ill for eight or nine years and had scarcely left her bed since the beginning of her illness.

History.—Family and personal history insignificant. Precise details as to the beginning of the illness are wanting, but can be imagined from the successive diagnoses of her physicians—influenza, bronchitis, and colds. The sputum, streaked with blood, had been frequently examined for T.B., always with negative results. Sometimes the blood would disappear from the sputum for a few days, but regularly recurred. There was also occasional slight hæmorrhage in quantity, varying from one to two tablespoonfuls. The fever, which at the beginning remained high for periods of two weeks or a little more—with remissions of some days, sometimes a week or two—had been nearly constant for a year or two, and often reached 40° C. She had never menstruated.

She had undergone various treatments at the hands of a number of physicians, but chiefly symptomatic, and in 1918 she was operated on for appendicitis. The operation had no influence on the course of the illness, and I mention it chiefly to show the difficulty in the correct diagnosis of the case. She was finally treated as tuberculous and removed for a change of air to a sunny station in the vicinity of the town. This diagnosis had been the most frequent during the illness.

Her general appearance by no means agreed with the gravity of the symptoms described. The girl was indeed pale, a little thin, and with dark circles round the eyes, but she was far from presenting the cachectic aspect that would have accompanied a tuberculous illness of such duration and with such fever. When examined no pulmonary mischief could be detected, as one would naturally expect, in a case of pulmonary tuberculosis of so long standing. There was only a very slight dullness in the right subclavicular space, and some sibilant and subcrepitating râles diffused over the whole extent of both lungs. The patient also had an advanced pyorrhœa alveolaris and her breath was fœtid.

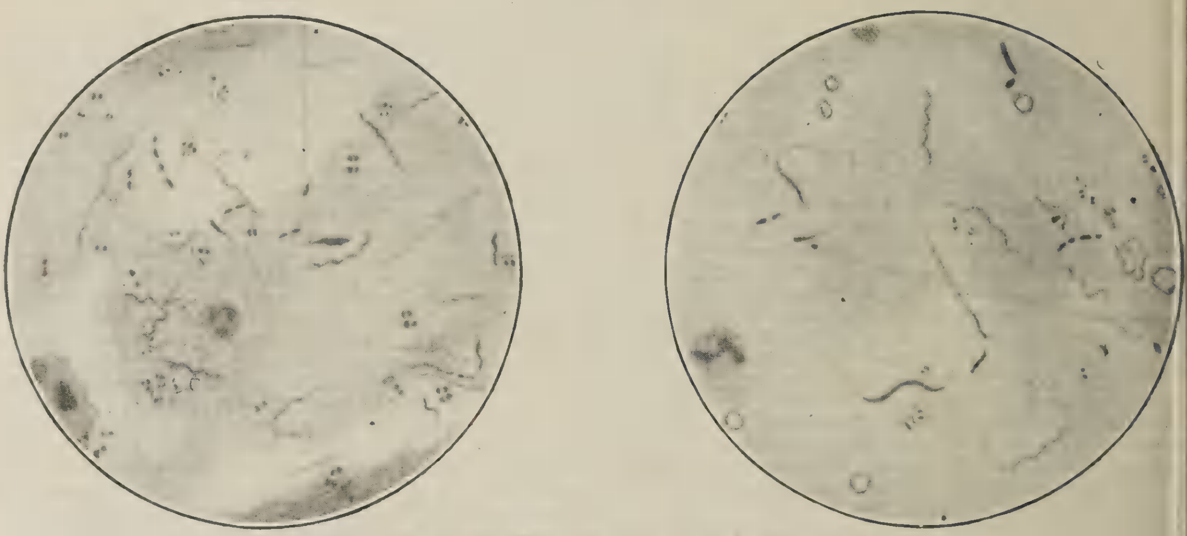


Fig. 1.

Fig. 2.

Spirochætes of Castellani. Films of sputum stained with gentian-violet.

I had thought for a moment of syphilis of the trachea and bronchi which is sometimes accompanied by hectic fever and can simulate tuberculosis, and had a Wassermann made which showed itself feebly positive. Further examination showed very numerous Castellani spirochætes in the sputum and this established the diagnosis. She received eight weekly intravenous injections of neosalvarsan in doses of 0·15, 0·20, 0·30, 0·45, and three of 0·60 cg. It was only after the seventh injection, the second of 0·60 cg., that the temperature, which during all that time oscillated between 39° and 40° C., began to fall. It reached normal in the space of a few days. The sputum, which at that time was still bloody, remained so for some time, bu with intermissions which grew longer and longer. A few weeks after the last injections the hæmoptysis definitely ceased. Since her recovery, more than two years ago, she has gone out and enjoyed life like others, and with the exception of a certain weakness of constitution, intelligible after confinement to bed of more than eight years; she has had no recurrence of any of her former symptoms.

As in all my cases the disease did not show itself contagious, even for the patient's sister, who nursed her for so many years.

My second case is that of an Egyptian lady, who came to me in 1922. She complained of sensations of tingling in the tongue and throat. She had felt those organs swollen dry, and numb. For three or four years she has had slight hæmorrhages at different times, the blood coming as much from the nose as from the mouth. She had cough and palpitation on effort, and snored in sleeping. It is to be noted that it was especially for the sensations in the throat and tongue that she consulted me, for the hæmoptysis had been attributed to tuberculosis by so many physicians, while she had so slight symptoms that she finished by paying little attention to it. There was no fever, and at the examination I could only remark some râles at the left apex, a cracked tongue, and a pyorrhœa alveolaris. I made at once some films of her sputum, stained them, and found a number of fusiform bacilli and spirochætes identical with those of Vincent's angina, but no T.B. With the exception of a certain diffused redness of the pharynx there had been none of the symptoms which characterise the angina of Vincent.

An intravenous injection of 30 cg. of neosalvarsan followed by another of 0·60 cg. seven days after, brought about the disappearance of the bronchial and other symptoms I have never been able to convince her relations that it was not tuberculosis that I had cured, but quite another disease and they have not ceased to send me cases of authentic tuberculosis, for which, of course, I possess no miraculous specific.

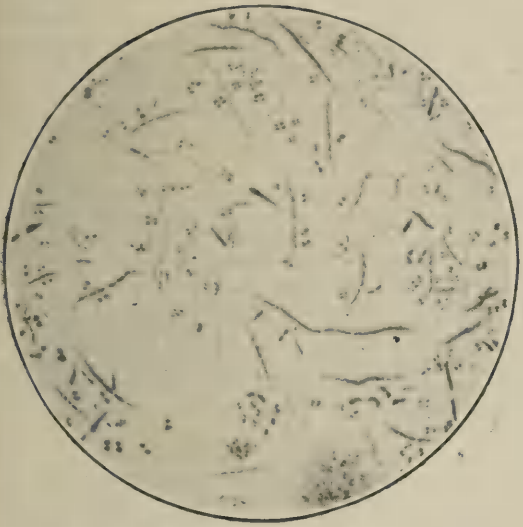
My four other cases are similar, all having some cough and sputum, sometimes streaked with blood pyorrhœa alveolaris always, and few or no pulmonary signs. Spirochætes were always visible with the ultra-microscope or after staining; there was no fever, and in general the symptoms were very benign The treatment was the same as for the preceding cases described and the result identical.

Pathogenesis.

The broncho-pulmonary spirochætosis is due, we have said, to the localisation in the respiratory tract of the spirochætes of Castellani. This organism (see Figs. 1 and 2) displays a polymorphism that is considered characteristic. Forms can be seen, long or short, slender or thick, and they are found sometimes matted together. Their mobility is great, and they have sometimes the appearance of a vibrating cord, sometimes of an eel undulating slowly through obstacles. Their length varies from 5 to 25μ and their width from 0·2 to 0·3μ. Like all the protozoa their culture is difficult and until lately was considered impossible. However, certain authors have recently reported success.

There is a tendency to group together the various parasitic spirochætes of the mouth, teeth, pharynx, and bronchi, and to consider them if not a single species, at least as capable in such localities and conditions of provoking identical lesions and symptoms. The fact that all my cases presented pyorrhœa alveolaris supports this view. It even throws doubt on the separate identity of the fusiform bacilli and the spirochætes of Vincent, the agents of ulceromembranous angina. The films obtained with the sputum of my second case named gave results identical with those obtained in the most typical cases of Vincent's angina. However, we must note one extremely important detail, that this case presented none of the symptoms characteristic of that disease. It is, I think, the first case described of sanguinolent bronchitis provoked by this fuso-spirillary association. This case powerfully supports the above hypothesis. But the film referred to is still interesting on another ground, for it shows forms resembling fusiform bacilli by the presence in their thickness of some traces of the vacuoles which characterise these bacilli and also resembling the spirochætes in their form (see Fig. 3). The thickness is intermediary to both. They appear to be transition forms between the fusiform bacilli and the spirochætes. The fusiform bacillus in this case is not to be considered a bacillus, but in my opinion a sort of encysted form of the spirochæte, which therefore is to be looked on as the adult form of one and the same protozoon. The Wassermann reaction is in general negative in cases of broncho-pulmonary spirochætosis. However, in my first case it was feebly positive, and I attribute this to the very long duration of the illness (eight years).

FIG. 3.



Association of *B. fusiformis* and fuso-spirillary organisms of Vincent with transition forms.

Violle affirms that the spirochætes which exist as parasites in the buccal cavity and which (in certain cases ill determined) propagate in the neighbouring parts, provoking various lesions (pyorrhœa alveolo-dentaire, Vincent's angina, broncho-spirochætosis of Castellani or bloody bronchitis), seem to originate from the soil. Man seems to become infected by the ingestion of raw fruits, vegetables, &c., badly cleansed from the damp earth which covers them. The fact that all my cases presented pyorrhœa alveolaris and that some of them averred that the pyorrhœa had preceded the bronchitis, inclines me to the hypothesis that this would be the first localisation and richest in the spirochætes.

Diagnosis.—This is established by the presence of the polymorphous spirochætes in the sputum. Any patient presenting vague symptoms of bronchitis and sputum tinged with blood should be suspected of bronchial or broncho-pulmonary spirochætosis, and his sputum examined from this point of view. The absence of definite pulmonary symptoms must be considered an indication of the disease. It is from tuberculosis that the differential diagnosis has to be made. Radiography may be of some use, by giving negative results in cases of spirochætosis, but it is always the microscopic examination of the sputum that determines the diagnosis. The spirochætes are easily recognised by the ultra-microscope, or rather by microscopic examination on a black background. They are seen alive, very mobile, and presenting all the characteristic movements of various spirochætes. The films may be stained by numerous methods. I found it simple to stain them slowly (from 10 to 15 minutes) with carbolic-gentian-violet, the results being very clear and of easy interpretation. The only inconvenience of the method is that the slides thus stained are difficult to preserve. I had the disagreeable surprise of not being able to distinguish the spirochætes (although all the other elements could still be seen very clearly) in slides thus stained and preserved for some months with Canada balsam. By chance I found that after a treatment by xylol for 24 hours and a fresh stain I could again distinguish the spirochætes as distinctly as before.

Prophylactic treatment of broncho-pulmonary spirochætosis consists in avoiding the ingestion of raw and insufficiently washed fruits, vegetables, &c. Serious attention must be given to the hygienic care of the mouth. The pyorrhœa alveolaris, from this point of view, as for other reasons, must be regularly and thoroughly treated. Microscopic examinations of the pus ought to be made with more regularity than is usually done, and the discovery of any species of spirochætes in a case of pyorrhœa ought to justify a treatment by neosalvarsan, all the more so because mild doses are often sufficient.

As a *curative treatment* neosalvarsan has, according to the majority of authors, given definite results. But it has not satisfied others. Dr. Najib Farah employs only iodine, under the form of lipiodol, in daily intramuscular injections, then spaced, of 2 c.cm. each. He states that he has always had very good results. In any case this treatment has the disadvantage of its length.

My cases have always been cured after one or two intravenous injections of neosalvarsan, except the case of eight years' duration, in which, as I have said, a greater number of injections was necessary. It is, perhaps, on account of insufficient doses that authors have reported failure. In this patient it was only after the seventh injection (the second of 0·60 cg.) that the temperature began to fall and the patient to recover.

Conclusions.

I sum up my conclusions as follows :—

1. There exists a broncho-spirochætosis, chronic from the first and not contagious.
2. The fuso-spirillary organisms of Vincent may localise themselves in the bronchi and provoke a bronchitis of the Castellani type.
3. There exist intermediate forms between the fusiform bacillus and the spirochæte of Vincent, and the hypothesis that the fusiform bacillus is but an encysted form of the spirochæte is a reasonable one.
4. The spirochæte of Castellani may influence in the positive sense the reaction of Wassermann.
5. Pyorrhœa alveolaris seems to be the first localisation of the various spirochætes which, on reaching the bronchi, may give rise to broncho-spirochætosis of Castellani.

6. Neosalvarsan, in intravenous injections and with sufficient doses, is the effective remedy for this spirochætosis.

From a practical point of view I have brought together the cases observed by me with those described at Alexandria by Dr. Najib Farah, and I agree as to the probable frequency of cases of broncho-pulmonary spirochætosis in Egypt, and attribute them to the same causes that determine in this country the frequency of pyorrhœa alveolaris—that is to say, a want of alimentary hygiene, and insufficient attention paid to the hygienic care of the mouth.

TRIGONITIS AS A CAUSE OF IRRITABLE BLADDER.

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The term "irritable bladder" does not denote any particular disease but refers only to certain conspicuous symptoms. In the past it has been loosely employed in cases where frequent and painful micturition was present, and was in common use about the middle of last century. The introduction of the cystoscope and X rays has led to a more accurate and an earlier diagnosis, and we now prefer to speak of the particular disease rather than of the predominant symptom. But there is still a class of case where, notwithstanding a careful examination, no definitely recognisable pathological condition is to be found; to this class the term "irritable bladder" may still be applied.

The act of micturition is to a certain extent under the control of the will. The number of times it is performed during the day varies with the individual, and is dependent upon habit and temperament. Normally it is four to seven times; this number may be increased during cold weather, after drinking large quantities of fluids, and during periods of mental strain.

The chief causes of prolonged increases of frequency are the following: (*a*) Polyuria due to such diseases as diabetes, chronic nephritis, or high blood pressure (hyperpiesia). (*b*) Changes in the urine such as hyperacidity or excess of the normal constituents—e.g., oxaluria. (*c*) Infections of any part of the urinary tract. (*d*) Diseases of the kidney such a stone, tuberculosis, or hydronephrosis, which may act reflexly or by giving rise to polyuria. (*e*) Diseases of the bladder and urethra such as stone, new growth, or tuberculosis. (*f*) Those conditions which diminish the capacity of the bladder or prevent its being completely emptied such as stricture or enlarged prostate in the male, and cystocele, or tumours of the uterus and ovary in women. (*g*) Reflex causes from diseases in neighbouring organs, particularly the rectum and genitalia.

Each of these has a recognised pathological basis, the removal of which should cure the complaint. But the condition I am now about to describe has received little attention in this country, and we know practically nothing of its pathology. It was first described by Knorr[1] in 1900; since this time several articles have appeared in America, where it has been called cystitis localised to the neck of the bladder (cystitis colli),[2] or trigonitis, the name originally given by Kelly. References are to be found in French text-books, where it is referred to as *la cystite partielle* or *la cystite du trigone*[3]; but it seems that some of the cases described under *la névralgie vésicale* and *la neurasthénie urinaire*[4] should be included. Though the expressions irritable bladder and trigonitis crop up, I can find no definite account in recent British literature. It is more common in women, and descriptions have generally come from gynæcologists; it is, however, also found in men. Some of the conditions attributed to lesions of the prostate, but in which no pathological changes can be detected in the gland, should be included.

Ætiology.

It is seen most often between 40 and 55, the period during which in women involutionary changes are taking place in the neighbouring sexual organs. It may arise during pregnancy, but is more common after labour, particularly if there has been some infection of the urinary tract. It follows inflammation of the neighbouring organs—e.g., salpingitis and appendicitis—but is not common in uncomplicated tumours of the uterus and ovary and such conditions as cystocele. Pelvic operations are common precursors, especially if they set up retention of urine.

Symptoms are present in infections of the urinary tract only so long as the infection is kept up, when pus and bacteria are to be found in the urine. But sometimes irritability of the bladder with a clear urine may persist. Trigonitis may follow gonorrhœa, but in my cases a history of gonorrhœa is not common. It sometimes arises after acute infectious diseases such as influenza. Hurry Fenwick[5] has referred to the obstinate and severe neuralgias of the lower urinary tract that followed an epidemic of Russian influenza. In some of my cases that followed an attack of influenza an infection of the urinary tract was undoubtedly present at the time; but in others the evidence is not very definite. A history of typhoid fever was obtained in one of my cases, but no bacteria could be cultivated from the urine. In 40 per cent. of the cases no abnormality of the pelvic viscera can be detected, nor was there any evidence of a preceding urinary infection.

Symptoms and Course.

While the onset is usually insidious, it may be very acute when an infection of the urinary tract is probably the primary cause. Increased frequency of micturition during the day and later during the night is the first symptom. It is more marked after exercise, exposure to cold, or any indiscretion in diet. Pain that may be referred to the neck of the bladder, to the perineum, or to the external meatus, is common. It sometimes radiates to the sacral and lumbar regions. It is not relieved by rest; while sometimes most intense before and during micturition it is generally most marked at the end. It may be extremely severe, and there may be acute paroxysms unrelated to micturition. In some cases only a slight burning pain or a feeling that the bladder has not been emptied is present. There may be urgency of micturition and also a little difficulty in starting the stream. Sometimes there is a history of hæmaturia.

Though the symptoms may remain stationary for years and periods of complete remission may occur, the course is gradually progressive, and sooner or later the general health becomes undermined.

Examination.

The urine is generally clear and sparkling and contains no visible pus. Its reaction is variable. A trace of albumin may be present. The centrifugalised deposit shows an excess of epithelial cells, some red cells, and occasional pus cells. Bacteria are rarely found on examining a drop specimen or the centrifugalised deposit of the recently passed urine. The *Bacillus coli* or staphylococcus may be grown on culture. But I do not attach much importance to their presence unless they can be detected in the freshly passed urine, as the possibility of contamination from the urethra cannot be excluded. Occasionally there may be an appreciable amount of pus; but in these cases cystitis and infections of the kidney must be carefully excluded. While the general health may be good, these patients are often very neurotic and introspective.

Cystoscopy.

There is often much pain as the cystoscope passes over the proximal part of the urethra and the neck of the bladder. The capacity of the bladder is not diminished; it can hold ten ounces without discomfort. The walls and ureteric orifices are unaltered. The trigone is congested and thickened; this may be so intense as to give an appearance of red velvet. The line of demarcation from the healthy bladder wall is usually very distinct. Œdematous patches are not uncommon, especially in the neighbourhood of the internal sphincter. The papillæ may be much swollen and hypertrophied and may resemble true polypi. Scattered red spots like petechiæ and small shallow ulcers may be seen. In two cases where the pain was very severe there were linear ulcers in the region of the sphincter bearing a strong resemblance to an anal fissure. The congestion extends into the proximal part of the urethra, involving the posterior more than the anterior wall. In the male the verumontanum may be congested and hypertrophied. In women the lesion is most marked over the trigone; in men in the prostatic urethra.

Diagnosis.

This is usually made by the process of exclusion. Early tuberculous disease, ureteral stricture (which is more common than is usually supposed), calculus of the lower end of the ureter, and the bladder crises of tabes, may give rise to severe bladder symptoms with a clear urine; yet little may be found on cystoscopic examination. The infiltrating form of vesical carcinoma and the caruncle of the urethra may give rise to similar symptoms, but here the lesion is very evident and there should be no difficulty in making a diagnosis. Pyelitis can give rise to marked frequency with few bladder changes; it is excluded by the absence of an appreciable amount of pus. Trigonitis must not be confused with the small contracted bladder that may follow chronic cystitis in women.

Pathology.

I have had no opportunity of performing a post-mortem on any case. Garceau,[2] who examined scrapings from the trigone, found that there was little evidence of inflammation in the stratified epithelium but much subepithelial inflammation. Halle[6] considered that the lesion was a perivascular and perineural fibrosis due to a preceding inflammation.

Treatment.

When the condition has become established, little improvement follows rest, dieting, and the administration of drugs. Irrigations are useless. Dilatation of the urethra with the instillation of 1 to 5 per cent. silver nitrate into the neck of the bladder sometimes does good. Those remedies that do so much good in chronic cystitis have little action in these cases. Suprapubic cystostomy, the formation of a vesico-vaginal fistula, and curettage of the base of the bladder have been performed with little if any benefit. The infiltration of the base of the bladder recommended by Lindemann[7] has given good results, but to carry it out is difficult in women and impossible in men.

Diathermy.—In 1918 I was impressed by the relief that followed the application of diathermy directly to a caruncle of the urethra; in 1919 I carried out the same treatment in cases of trigonitis. There was some improvement, but not a complete cure, as I did not then attach sufficient importance to the lesions present in the urethra. Since this has been realised and remedied, I can claim that immediate and permanent relief follows in practically all cases. Treatment is carried out by means of the cysto-urethroscope of the Brown-Buerger type, a broad electrode being placed on the abdomen and the active electrode, which is insulated except at the tip, is passed down the cystoscope. The current is applied directly to the trigone in lines radiating from the internal meatus. Particular attention should be given to any erosions, fissures in the region of the internal meatus, or lesions of the urethra that may be present. The current should be sufficiently strong to cause the area to which it is applied to take on a whitish appearance. A superficial necrosis is undoubtedly set up; but I have never seen any harm follow, such as infection, persistent ulceration, or stricture formation; this is only to be expected when one considers the results that follow the treatment of vesical tumours by diathermy. Subsequent cystoscopy shows that the congestion has largely disappeared and the trigone has a more normal appearance.

The following cases may be regarded as typical of the series:—

(1) Mrs. B., aged 43, had suffered from frequent and painful micturition since a miscarriage in 1918. Local treatment to the bladder had only aggravated the condition. In September, 1922, she was admitted under the surgical unit, when micturition took place every half-hour during the day and night. There was severe pain most intense at the end of micturition, and there were occasional paroxysms unrelated to micturition. The urine was clear and contained no pus or bacteria. On Nov. 1st diathermy was applied to the trigone and upper part of the urethra. The pain immediately disappeared and the urine could be held for four hours. She was seen in April, 1924, when the urine was clear, frequency was normal, and there was no pain.

(2) Mrs. W., aged 67. Had frequent and painful micturition from 1886 to 1913, when the symptoms subsided. In 1921, when away from home, she found it necessary to retain her urine for a long time, and this was followed by a return of the symptoms. In September, 1923, she was admitted under the surgical unit, when micturition took place every 15 minutes during the day and every hour at night; there was also a griping pain at the neck of the bladder which was relieved by micturition. The urine was clear and contained some red corpuscles, a few pus cells, but no bacteria. Cystoscopy showed intense congestion of the trigone and urethra and a large diverticulum above the right ureter. The application of diathermy was followed by immediate relief of the symptoms. When seen in July, 1924, micturition was normal and free from pain.

(3) Mrs. K., aged 53, was operated upon in July, 1923, for double hydrosalpinx. Retention of urine followed and a catheter was passed for 14 days. Urgent and frequent micturition supervened and there was intense pain at the end of the act. I first saw her in November, 1923, when she was much wasted, and micturition took place every 15 minutes both day and night. On vaginal examination there was a hard mass, evidently malignant, on the left side of the pelvis. The urine contained some red corpuscles, a few pus cells, many epithelial cells, but no bacteria. I thought that the symptoms might be due to pressure on the pelvic nerves or involvement of the bladder, but cystoscopy showed no infiltration of the bladder wall. There was much congestion of the trigone, and near the internal meatus was a small linear ulcer resembling an anal fissure. Immediate improvement followed treatment by diathermy and she had no return of the urinary symptoms up to her death in January, 1924.

(4) J. W., aged 36, a ship's engineer, had suffered from frequent and urgent micturition for six years. There was no history of gonorrhœa, and treatment by the passage of bougies and the instillation of silver nitrate had done no good. The urine contained numerous epithelial cells, a few red blood cells, but no pus cells or threads. The prostate was of the normal consistency and size and its secretion contained no pus. Cystoscopy showed a congestion of the trigone which involved the verumontanum. In July, 1923, diathermy was applied. The symptoms became less severe, and when I heard from him lately, the frequency had disappeared.

The condition has been regarded by some as an inflammation, by others as a neurosis, since the symptoms are quite out of proportion to the lesion present. Incontinence is the prevailing bladder symptom in diseases of the central nervous system, but in multiple sclerosis frequent and painful micturition may be found. In my cases no sign of any nervous disease was present and the Wassermann reaction of both the blood and cerebro-spinal fluid was negative. Psychoses and neuroses of the bladder are by no means uncommon, but in such cases local treatment to the bladder does much harm. Now, when frequent micturition is present, there is interference with sleep and the carrying out of all social duties. The general health soon becomes undermined, and as it is impossible to leave home without first thinking of all possible facilities, it is scarcely to be wondered at that such sufferers become neurotic and introspective. The rapid improvement that follows the relief of the bladder symptoms in cases of trigonitis is proof positive that the neurosis is secondary and not primary.

Sir John Thomson-Walker[8] has pointed out that in the majority of cases of cystitis the inflammation does not affect the whole surface of the bladder mucous membrane, and that the trigone generally bears the brunt. The cystoscopic appearance with the congestion and œdema, and the hypertrophy of the papillæ, bears some resemblance to that seen in chronic cystitis. The bladder, however, is very resistant to bacterial infections, and a persistent cystitis is due either to some infection of the kidneys or to some condition that interferes with the proper evacuation of the urine. Neither is present in trigonitis, which differs very materially from chronic cystitis in that no appreciable amount of pus and no bacteria are found in the urine.

The Present Theory.

The development of the trigone and prostatic urethra in the male and the whole of the urethra in the female differs from that of the rest of the bladder. For the latter is a derivative of the cloaca and its mucous membrane is of entodermal origin, while the former are derived from the lower portion of the Wolffian duct and are of mesodermal origin. There seems to be some difference in their nervous, vascular, and lymphatic supply. That the trigone is the most sensitive part of the bladder can be easily shown in operations under local anæsthesia. Again, when tuberculous disease involves the anterior wall, frequent micturition alone is present, but as soon as it extends on to the trigone there is also much pain. In coli and other infections the pain present is directly proportionate to the degree of involvement of the trigone.

The blood-supply of the bladder is best shown up by cystoscopy. In the normal bladder the blood-supply of the trigone is much greater than that of the rest of the bladder; there is little anastomosis between them and the line of demarcation is very distinct. On the other hand, there is an intimate anastomosis between the veins and arteries of the trigone and those of the neighbouring pelvic organs. For, when bladder symptoms are present in diseases of the latter or arise after pelvic operations and cystitis is excluded by the absence of pus and bacteria, there is a congestion which is confined to the trigone, unless the bladder wall is involved in the inflammation. This congestion is frequently present in the first few months of pregnancy, and, were cystoscopy to be carried out in those who suffer from frequent micturition during menstruation, a similar condition would probably be revealed. A tumour of the pelvis that presses on the pelvic veins may lead to dilatation of the veins over the bladder wall, but more often there is just a congestion of the trigone. Sometimes this congestion is seen in women over 40, which I attribute to a varicosity of the pelvic veins that may develop about the time of the menopause.

Once congestion of the trigone is set up it predisposes to bacterial infection, the bacteria reaching it either from the urine or urethra or by lymphatic extension from the neighbouring viscera. On the other hand, such a congestion may persist after a preceding cystitis has subsided.

It is well known that an active congestion, whether bacterial in origin or not, may give rise to frequent and even painful micturition. But it is difficult to ascertain the symptoms that follow passive congestion. One can, perhaps, best judge from analogy with similar conditions elsewhere. In varicose veins of the leg the symptoms are very variable; occasionally there are severe pains and attacks of cramp, which appear to be most marked when the venules alone are dilated. They are attributed to a perineural fibrosis or to a varicosity of the endoneural veins. It is quite possible that passive congestion in such a sensitive structure as the trigone might give rise to equally severe symptoms. Diathermy would destroy the sensitive nerve fibrils, and the relief that follows can be compared to that seen after an irritable ulcer has been excised or the adjacent nerve divided.

It seems to me that trigonitis can be regarded as due to a congestion of the trigone that follows a preceding cystitis, some inflammation in the neighbouring viscera, or a varicosity of the pelvic veins. This leads to the deposit of small round cells and the formation of fibrous tissue with irritation of the nerve terminals. At any time œdema and ulceration may supervene. Such a hypothesis can explain the absence of pus and bacteria since the lesion is subepithelial; also the immediate improvement that follows the application of diathermy. It corresponds to many points in the ætiology, since such a congestion may follow a previous urinary infection, some inflammation of the pelvic viscera, or a pelvic operation; it may also develop insidiously in association with a pelvic varicocele.

Trigonitis with its marked symptoms and few local changes may be compared to the urethral caruncle, which is regarded by some as an angioma, by others as a local inflammation. But whatever its nature, for its size it is one of the most painful conditions we encounter, and it arises in a mucous membrane which is developed from the same structure as the trigone.

Summary.

1. Trigonitis is a condition associated with severe bladder symptoms but few changes in the urine. 2. Cystoscopy shows congestion limited to the trigone. 3. No pathological changes are detected in the neighbouring pelvic organs. 4. It resists all those remedies that are beneficial in chronic cystitis. 5. The application of diathermy to the trigone produces an immediate improvement in the symptoms.

In conclusion, I wish to express my indebtedness to Prof. A. W. Sheen, director of the Surgical Unit, for the facilities he has placed at my disposal in the carrying out of this work and for many useful suggestions.

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THE CHEMICAL COMPOSITION OF BLOOD DURING LABOUR.

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IT is becoming more and more recognised that the biochemical examination of the blood during the latter months of pregnancy and during labour is a valuable aid in the early recognition of pathological conditions which may otherwise remain unsuspected. These slight abnormalities unless diagnosed may have serious results, such as nephritis, eclampsia, &c. In many cases the blood of pregnant patients is not examined until they are in labour, or until some clinical abnormality, such as a high blood pressure, is noticed or attracts attention, when on analysis of the blood a raised value for the blood-urea may be found. These values may then be compared with the low blood-urea and non-protein-nitrogen values present in normal pregnancy, as shown by the writer in a previous paper. They are here recapitulated. The average for the whole duration of pregnancy is:—

N.P.N. mg. %.	Urea mg. %.	Diastase.	Ratio.
25·2	19·5	8·8	35·9

The greatest drop takes place, however, during the fifth and sixth months, when the fœtus is growing most rapidly in length. (See Chart.)

Rise in Nitrogen Values During Labour.

In the following notes it is hoped to demonstrate that there is normally a considerable rise in the nitrogen values during labour; in fact, the average is raised to those of the non-pregnant level. This rise is of a noticeably different order from the rise that takes place during the last few months of pregnancy, and takes place very quickly. Unless this rise is taken into account an erroneous idea may be formed as to the patient's condition, both in normal and abnormal cases.

Caldwell and Lyle examined a series of cases and came to the conclusion that there was a low blood-urea and non-protein-nitrogen content of the blood during pregnancy, and that the nitrogen partitions of the maternal blood at the end of labour did not differ much from those found during the last few weeks of pregnancy. Dodds also states that the blood-urea at the end of pregnancy frequently rises to about 40 mg. per cent. without necessarily indicating the likelihood of pathological conditions ensuing. This does not agree with the values found in about 40 cases recently examined by the writer in which the blood-urea has not been found to rise to any such values towards the end of pregnancy.

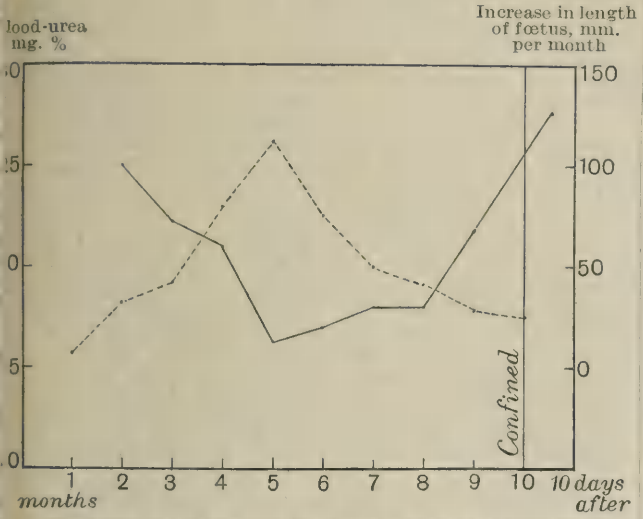

Chart showing the drop in blood-urea which takes place during the fifth and sixth months of pregnancy.

Experimental Results.

About 40 cases have been examined during and after labour, some of whom have also undergone regular blood examinations during pregnancy. The blood-urea, non-protein-nitrogen, and diastase were estimated in these cases, and the average values were found to be as follows :—

	N.P.N.	Urea.	Ratio.
During labour ..	30·4 ..	28·4 ..	43·6
After labour ..	31·5 ..	28·2 ..	41·2

In half the number of the cases the blood taken was during the first stage of labour, in the other half just before delivery, the average of the analyses were as follows :—

	N.P.N.	Urea.	Ratio.
First stage	30·1 ..	28·0 ..	43·3
Second stage ..	30·7 ..	29·1 ..	42·2

Where possible blood examinations were made during labour in cases that had been previously investigated, so that a comparison between the values found during pregnancy and during labour could be made, these figures show an average of :—

	N.P.N.	Urea.	Ratio.	Diastase.
During pregnancy ..	25·9 ..	18·9 ..	34·1 ..	8·1
During labour { First stage ..	30·7 ..	29·2 ..	44·1 ..	—
During labour { Second stage	31·6 ..	28·4 ..	43·2 ..	—
Average of first and second stages ..	31·1 ..	28·9 ..	43·8 ..	—
During puerperium ..	31·2 ..	29·2 ..	41·5 ..	8·8

From these figures it is clear that there is an appreciable rise in the blood-urea and non-protein-nitrogen during labour in normal cases, the average urea content changing from 19·0 mg. per cent. to 28·2 mg. per cent. When a single blood examination, therefore, is made on a patient suspected of some abnormal condition during labour, a due allowance must be made for this normal rise.

The first six cases from the tables for normal cases are given below, and it will be noted that some cases were examined only a few days before labour started ; at those dates the urea content of the blood was still at the low pregnancy level. This quick rise in the blood-urea probably indicates a sudden alteration of metabolism.

The First Six Cases Taken from Table I. Cases Examined During Pregnancy, During Labour, and During Puerperium.

Case.	—	Duration of stages.		Stage of sample.	Blood date in 1924.	Analysis N.P.N. mg. %.	Urea. mg. %.	Diastase.	Ratio.
		1st.	2nd.						
1	M.	hr. 97	F.		15/4	27·0	21	12·5	35·9
					9/5	25·8	17	10	30·7
				1st	20/5	30·4	33	3·3	50·6
					27/5	35·4	34	12·5	44·8
2	P.	97	F.		10/4	23·7	14·5	5	28·5
				1st	19/5	33·4	29	3·3	40·5
					26/5	30·5	27·5	10	42
3	P.	13	1½		27/3	26·1	21	12·5	37·5
			hr.	2nd	16/4	33·4	29	3·3	40
					15/5	30·2	25·5	10	39·4
4	M.	6	¾		26/11	28·7	22·5	12·5	36·5
					3/1	22·7	20·5	16·6	42
					5/3	26·6	22	16·6	38·5
					10/3	27·7	21	16·6	35·4
				1st	14/3	22·3	30	—	62·7
					24/3	31·1	30	—	45·1
					29/4	32·7	31	12·5	44·2
5	M.	2¾	35		13/3	23·1	13	10	26·1
			min.		20/3	28·7	17	5	27·6
					14/4	29·5	19	10	30
				1st	16/4	33·8	30	—	41·4
				2nd	16/4	31·8	27	—	39·6
6	P.	7¾	2		29/5	27·7	22	5	37
			hr.	1st	26/7	38·8	36	—	42·7
					7/8	31·6	29·5	5	43·5

M. = Multipara. P. = Primipara. F. = Forceps.

In each case the Wassermann reaction was negative and the urine normal.

Thanks are due to Prof. Louise McIlroy for permission to examine the patients under her care, and to Prof. Winifred Cullis for her help and kindly criticism throughout. The work has been carried out under the auspices of the Medical Research Council.

References.—Caldwell and Lyle : Amer. Jour. of Obst. and Gyn., July, 1921. Dodds, E. C. : Proc. Roy. Soc. of Med. Pillman Williams : Jour. Obst. and Gynæc. of Brit. Empire, 1923.

DONATIONS AND BEQUESTS.—Sir Max Leonard Waechter, of Richmond, Surrey, left £5000 each to the Victorian Convalescent Home for Women of Surrey at Bognor, the Children's Convalescent Home, Cambridge House, Bognor, and to Queen Mary's Holiday Fund for Governesses, Petersham, Surrey.—The Committee of the David Lewis Northern Hospital, Liverpool, have accepted an offer by Mr. Clifford Temple of the house and grounds (six acres) known as "Mossley Bank," Aigburth. It will be used as a "Home of Recovery," whither patients will be transferred after they have passed the "acute" stage of hospital treatment. Over £2000 have been subscribed for alterations and maintenance. The home will accommodate 25 patients.—Miss Sarah Margaret Eastwood, Littleover, Derby, left £500 to the Derbyshire Hospital for Sick Children and £1000 to the Leamington Incurables Home.—Mr. Frederick Alfred Badman, of Birmingham, besides other legacies, left £500 each to the Victoria Hospital, Blackpool, the Weston-super-Mare Hospital, the Queen's Hospital, Birmingham, and the Children's Hospital, Ladywood, Birmingham.—At a meeting of the University of Wales on Dec. 11th the Pro-Chancellor acknowledged the grant of £14,000 from the Rockefeller Trust towards the establishment of medical laboratories at the Royal Infirmary, Cardiff, and announced that the University had received £2000 from Mr. Ernest Prosser, of Llanishen, for the endowment of a research fellowship in the tuberculosis department of the National School of Medicine.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this section was held on Dec. 12th at the Royal Westminster Ophthalmic Hospital, Sir ARNOLD LAWSON, the President, being in the chair.

Marginal Dystrophy of the Cornea.

Mr. FRANK THOMAS (Swansea) brought two male patients who presented marginal dystrophy of the cornea. He could only find one similar case recorded—namely, by Mr. J. H. Fisher in 1910—on which the late Mr. G. Coats reported pathologically. In these present cases the marginal infiltration had resulted in corneal distortion and the production of hypermetropic astigmatism. Vision in the first case was down to 6/24, though with correcting cylinders it was still about 6/6. The second case illustrated the ultimate condition found in the disorder, for marked peripheral ectasia had resulted, leaving the central area of the cornea distorted, while a high myopia ensued from forward displacement. Vision in this second case was worse than in the other. With correction vision in the right eye was 6/18, in the left 6/36. Mr. Treacher Collins had examined the cases by means of the slit-lamp. Neither of the patients appeared to have suffered discomfort, except for the diminution of vision, which in the first case extended over two years, in the second during ten years. The first, however, reported having had " bloodshot eyes " for 30 years. The older of the patients was sent to the exhibitor by the Miners' Federation under the impression that the man had miners' nystagmus by which he had been incapacitated several years. No trace of this last condition was found. When assured by Mr. Thomas that he had no nystagmus now, the man had the courage to return to his underground work, which he carried out while wearing his glasses, a very rare happening. Each eye was affected in both the cases, pain and discomfort were absent in both, and he did not doubt that both were cases of marginal degenerative change. Only time would show whether the opaque ring in the younger patient would give way under the intra-ocular pressure and also become clear as in the older man. The periphery of the cornea was anæsthetic.

Mr. TREACHER COLLINS agreed that these were both cases of marginal dystrophy of the cornea, though the appearances of the two cases as seen now were strikingly different. The symmetrical character of the condition and the fact that it occurred in coal-miners were in favour of it being dystrophy as against an inflammatory condition. The man with the ectasia showed, when examined with the slit-lamp, the ribbon of light for the cornea definitely incurved on the posterior surface, indicating a thinning in that region. The man with the opacity showed a thinning at the anterior surface of the ribbon of light in the cornea, really a slight grooving of that surface. The thinning in the younger man might in time yield under the normal tension and become an ectasia. Perhaps Mr. Thomas would be able to keep the man under observation to see if that happened. The younger man had many dense opacities in the cornea, and the slit-lamp showed they were in the deep layers of the substantia propria. With regard to treatment, Mr. Fisher's case was treated by excision of a thin piece of the cornea at its margin, and the result was most satisfactory, though it seemed a risky procedure with such a thin cornea. He would not advise operation at present in Mr. Thomas's patient with vision of 6/18.

Gradual Disappearance of Cysts of Iris.

Sir RICHARD CRUISE showed a patient in whom there had been two large cysts of the iris. He showed the patient before the section two years ago, and there was considerable discussion as to what ought to be done, some relating discouraging experiences. Gradually these cysts became smaller, and now but little could be seen of them. The endothelium at the back of the cornea showed where the cysts had been resting. Sir Richard Cruise also described a modified Motais operation which he had successfully performed on a patient whom he showed, and exhibited a case in which he did a modified flap sclerotomy.

Papillœdema in a Myope.

Mr. A. LEVY showed a patient whom he first saw four years ago and who was found to have 8 D. of myopia in each eye. When first seen the vision was about 6/12 in each eye. Three weeks ago the patient came again, still having myopia, and his vision was then only 6/36 ; and now a flaring optic neuritis was visible in both eyes, with a swelling of −1 D. in the optic disc. He showed the case because papillœdema had been said never to occur in a myope.

Leber's Atrophy.

Miss IDA C. MANN showed, for Mr. LESLIE PATON, a case of Leber's atrophy in a man aged 44, four of whose brothers had previously been shown before the section with the same condition. This man had had the condition ten months, and the optic discs were of a dead-white pallor. In the family were six brothers and four sisters, and none of the women showed the change. The oldest brother was affected at 28, the next at 33, the next at 27, the next at 22, and this present patient at 43 years of age. One brother, now aged 34, was so far unaffected. Several members of the family, both male and female, were married, and four sons were among their offspring, none affected.

Mr. RAYNER BATTEN related the case of a family in which three brothers were affected with this disease, and in them the atrophy had been preceded by optic neuritis. — Mr. THOMAS asked whether the cases spoken of showed, on X ray examination, any enlargement of the pituitary fossa.—Miss MANN replied that a skiagram was taken of the skull of this patient, and the report was that there was possibly a little enlargement of the pituitary fossa, but nothing very definite. —Mr. MONTAGUE HINE referred to a definite case of Leber's atrophy in his own practice, in which also X rays failed to disclose any enlargement of the sella turcica.

Pituitary Tumour.

Mr. HINE showed a single man, aged 22, who for two years had been getting stouter. Five months ago he came complaining of headaches and defective vision in the left eye. The corrected vision was, right 6/6, left 6/60. On his next visit two months ago he said the vision of his right eye was becoming worse. Corrected it was now found to be 6/12, the left still being 6/60. The optic disc of the latter was atrophic, and there was some pallor. Bi-temporal hemianopia was not quite complete. Seen by Dr. Gordon Holmes, the latter put him upon 5 gr. of thyroid a day, as a commencement. The skiagram showed the sella turcica enlarged, and much enlargement of dorsum sellæ, such as was seen in pituitary enlargement. The question of operation naturally arose owing to the increasing defect of the right visual acuity and the right upper temporal field. But there was slight improvement in the vision of the left eye and in the field in the left lower temporal quadrant ; also the cessation of the headaches, since the taking of thyroid.

The PRESIDENT said that mere diagnosis of pituitary tumour did not constitute a sufficient reason for operation. He related a case which had all the usual symptoms eight years ago, but no operation was advised. The patient was now managing a hotel and the condition had not progressed in the meantime. When he felt attacks he had been taking pituitrin ; if he neglected to do so he did not feel so well.

Mr. M. S. MAYOU related a different experience in the case of a boy with considerable acromegaly in association with a pituitary tumour. His condition became steadily worse for four years, in spite of his taking thyroid and pituitary extract, and Prof. Harvey Cushing did a decompression operation on him, and the patient had done very well since in respect of vision. The acromegaly continued, but the decompression operation evidently prevented further pressure on the chiasma.

Mr. THOMAS related a case of a large pituitary tumour which he treated with small doses of pituitrin and thyroid, but without benefit. He then increased the dose to 10 gr. thrice daily for a month, and that brought back the lost visual fields, and vision had remained at 6/6. Later the dose had to be increased to 15 ♏ three times a day, and though the patient had some headache he got sufficiently well to resume his work as a postman. But later still he went downhill and died.

Other cases were also shown.

LONDON ASSOCIATION OF MEDICAL WOMEN'S FEDERATION.

A MEETING of this Association was held on Dec. 9th, Miss M. CHADBURN, the President, being in the chair.

Miss E. C. LEWIS read a paper on

Frequency of Micturition in Women—its Ætiology.

She proposed to discuss the symptom from the point of view of its ætiology and from the clinical standpoint, making some attempt at differential diagnosis.* The *causes* could be classified as: (1) Disease of the bladder; (2) irritation of an otherwise healthy bladder; (3) incompatibility of size between the bladder and its contents; (4) a group of nervous diseases, organic and functional; (5) diseases of the kidneys and ureters. In the first group cystitis was an extremely common condition in women, and was likely to be superimposed upon any change in the bladder which might lower its resistance. Prolonged congestion, retention of urine, traumatism, and changes in the bladder wall itself were all causes predisposing to cystitis, and might easily be masked by overlying inflammation; but in every case of cystitis the causative lesion should be looked for and treated. It was easy to see that there must be frequency of micturition in cystitis, but less easy to account for it in other bladder lesions—for instance, with an uninfected diverticulum. As regards neoplasms, the simple papilloma did not cause frequency except when it was bleeding profusely, and then, apparently, because of sudden increase in the amount of fluid in the bladder, since blood in itself was not irritating to the bladder. Miss Lewis had seen cases in which blood was coming down from one of the kidneys in considerable amount, but the bladder itself was normal and there was no frequency. Malignant growths, stones, or foreign bodies always tended to cause frequency. *Irritation of the bladder*, leading to frequency, might be caused by something pressing on it—for instance, an enlarged uterus or an ovarian cyst. A uterus, even of normal size, if very anteflexed or if lying very flat across the pelvis in the antero-posterior direction, might impede the filling of the bladder and cause frequency. This was sometimes accompanied by pain relieved by micturition, unlike the pain of a really unhealthy bladder. *Urethral conditions*, such as prolapse of the urethral mucosa at the external meatus, which occurred typically at the extremes of life, might cause frequency; also a urethrocele, when the clinical picture was that the patient complained of repeated calls to empty the bladder, and that a few drops of urine ran away when she coughed or made any sudden effort. Pelvic inflammations, if acute, probably had an irritating effect on the bladder, while in cases of chronic cervicitis a trigonitis could generally be recognised on cystoscopy. Irritation from within might be caused by some change in the reaction of the urine, or a bacilluria, or an abnormal amount of phosphates or oxalates. Incompatibility of size between the bladder and its contents might be due to a bladder contracted as the result of old inflammation, or to polyuria from whatever cause. *Nervous diseases* might cause motor symptoms of the bladder—hyper-excitability; or sensory—hyperæsthesia. Frequency was very likely in both cases. On the functional side, hysterical and neurasthenic polyuria might be met with. In the last group, frequency due to renal and ureteric conditions, all the inflammations, and several other lesions were included. Most of the conditions, however, came into one or other of the earlier groups. Miss Lewis had been unable to confirm the theory of "reflex" frequency due to kidney disease.

Diagnosis from the Clinical Standpoint.

Patients who complained of frequency only were the most difficult. It was important to ascertain the number of times the patient passed urine by day and by night. One must also know whether the frequency was continuous, or whether it came on in attacks. The estimated quantity of urine passed at each act gave a clue as to whether the bladder really would not hold very much at a time, or whether there was polyuria. Urgency or incontinence should be inquired into; urgency with frequency was said to occur in some of the spinal cord lesions, and incontinence in some of the urethral conditions. In cases of painless frequency, without other symptoms, it was probable that some cause outside the bladder must be looked for. Ordinary routine clinical examination enabled the presence or absence of caruncle, prolapsed urethra, or urethrocele to be determined.

The medical causes of *polyuria* Miss Lewis did not propose to deal with. Surgically, polyuria suggested kidney trouble, such as chronic relapsing pyelitis or pyelonephritis, or in young people early tuberculosis. Frequency accompanied either by pain or by some abnormality of the urine practically always meant a lesion of the urinary tract itself, and in locating the lesion the situation and character of the pain and its timing in relation to micturition were important.

Frequency of Micturition as a Symptom of Systemic Disease.

Dr. IRENE YATES dealt with the clinical aspect of those diseases met with in the practice of a physician in which frequency was a symptom. The commonest of these were: (1) Disorders of the nervous system; (2) inflammatory conditions of the urinary tract; (3) chronic interstitial nephritis; (4) diabetes mellitus. Less commonly met with were diabetes insipidus and so-called diabetes phosphaturia and oxaluria. As to (1), frequency of micturition as a symptom of organic nervous disease was uncommon but might be met with in tabes. In neurasthenics it was a frequent symptom, since their normal stimuli gave rise to abnormal responses. In these patients, when consciousness was abolished, as during sleep, frequency disappeared, hence the importance of obtaining a history of nocturnal frequency. It was also important to ask if the patient was subject to insomnia, since in this case nocturnal frequency would be comparable to diurnal frequency. Inflammatory conditions of the urinary tract had been fully dealt with by Miss Lewis. In chronic interstitial nephritis, frequency when it occurred was due to the polyuria which resulted from the inability of the kidney to excrete non-protein nitrogen in a concentrated form. Dr. Yates discussed the differential diagnosis between frequency due to this cause and to neurasthenia, and then dealt with frequency of micturition as a symptom of diabetes mellitus and of diabetes insipidus. In diabetes insipidus polyuria might be due to a tumour of the pituitary or to irritation of the gland from without (e.g., in syphilitic meningitis). In other cases the polyuria would seem to depend on a polydipsia of nervous origin. Here the volume of fluid excreted was not more than the intake, whereas in the pituitary cases it exceeded it. Probably some of the cases previously reported as diabetes insipidus were cases of chronic interstitial nephritis. In cases of oxaluria without pyuria, frequency of micturition was presumably the result of mechanical irritation of the bladder by calcium oxalate crystals. The treatment was to exclude from the diet articles rich in oxalates, and to give magnesium, since oxalates were more soluble in the presence of magnesium.

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* The treatment of this condition is dealt with by Miss Lewis in the special article which appears on p. 1351.

Discussion.

Dr. C. Peake drew attention to the fact that often patients suffering from frequency made no complaint, except teachers or children, who found it difficult to get away from their work at short intervals.

The President recalled several cases of tuberculosis of the kidney where frequency was the only symptom for a considerable period.—Mrs. R. Gordon Holmes said that in disseminated sclerosis frequency was often complained of, as well as precipitancy.—Dr. L. M. Jeffries asked whether Miss Lewis had had favourable experience of Victor Bonney's method of operative treatment of a sagging urethra.—Dr. M. A. Blair quoted a case of oscaturia in a patient who had confined her food during Lent to rhubarb.—Dr. M. Dobie had seen cases in which frequency was caused by inflammatory adhesion of uterus or appendix to bladder.—Miss Bannerman described a case in which frequency was attributable to a perinephritis, of which the only symptom was pain under the left shoulder.

Dr. E. M. Guest, Dr. M. Brady, and Dr. Justina Wilson also spoke, and Miss Lewis briefly replied.

LIVERPOOL MEDICAL INSTITUTION.

A pathological meeting of this Institution was held on Dec. 11th, when a discussion on

Cancer

was opened by Dr. James Young (Edinburgh). He presented data in support of the parasitic view and said that it was often urged that the definite effect of chronic irritation in inducing cancer made it unnecessary to predicate the existence of a parasite or any other factor. He suggested that the driving back of the cells to their primitive state by irritation was merely a setting of the stage for the operation of another, an immediate cancerogenic factor. It seemed that in the change of a normal cell to a cancer there were two factors necessary—cell-susceptibility and an immediate agent. Irritation was merely a common way by which cell-susceptibility was accomplished. Dr. Young pointed to the suggestive analogy in plant tumours. Here the dual factors were again apparent. The immediate factor (parasite) could induce neoplasia only when infecting primitive cells—e.g., warty disease in potatoes and crown-gall. Mature areas in the plant ordinarily immune to neoplasia might, however, as Erwin Smith had shown, develop tumours due to the *Bacillus tumefaciens* if the surfaces were previously irritated. Dr. Young described a parasite which he had obtained from all classes of cancer (breast, ovary, uterus, secondary omental masses, secondary masses in glands from glandular and squamous cancer). He showed how, if a piece of cancerous tissue was incubated in any ordinary medium, at the end of 24 hours small perfectly discrete collections of organised elements, varying in size from a minute staining-point and ordinary coccal and bacillary elements up to yeasts, were often found. This striking arrangement was one amongst several observations which at an early stage of his research suggested that in cancer there was concerned an organism of elusive morphology which in the fresh tissue lived within the cells as an inconspicuous form. By means of microphotographs he showed how this phase after death of the cells grew out into the medium as a substance which in its primitive shape resembled an amorphous slime or plasm, but which tended rapidly to arrange itself as globules of greatly differing size, as rods or as hyphal filaments. All forms might be present at the same time. He showed how these various phases were often extremely fleeting and tended in a fluid medium to pass over into coccal or bacillary elements. When the tissue was only half immersed the plasm forms tended to organise into well-staining and well-formed fungal hyphæ. He illustrated all stages in this process and showed how, during the early stages, extremely bizarre forms appeared.

Dr. Young believed that the uniformity of the findings, no matter what class of cancerous growth was employed, indicated that the phenomena underlying malignancy were the same throughout—namely, an infection of cells by an organism (or closely related organisms) living within the cells symbiotically and lashing them into the frenzy of proliferation implied by cancer. This organism in its "saprophytic" phases corresponded to familiar bacteria universally distributed in nature. This accounted for the ease with which cancer might supervene where cell-susceptibility was present—e.g., experimental tar cancer. He referred to the difficulty of producing cancer experimentally with the organism. He believed that the chief obstacle was almost certainly the cell itself, for if the five or six months' preparation found in tar cancer were any index of the time required for the production of cell-susceptibility, it was not surprising that the artificial injection of the organism in a *healthy* animal failed to produce cancer. The exhibition of the organism, no matter how, tended to be followed by blood infection, and the production of a progressive lesion of the pseudo-leukæmic type. Striking confirmation of the specificity of the organism Dr. Young had obtained in the focal reaction in cancer cases treated by vaccines. In this way he had studied over 40 cases. Similar findings had been obtained by A. B. Smith and S. Smith, of Cambridge, and A. Lundie, of Birmingham.

Discussion.

Mr. F. T. Paul considered no line could be drawn between normal tissue growth and cancer; one passed from the embryo, through monsters, teratomata, mixed tissue growths, innocent tumours, recurrent growths to cancer without a break. Every new growth was an erratic counterpart of the tissue in which it originated. These points showed that cancer was closely allied to normal tissue growth and could not very well result from a microbe. He called attention to the exciting and controlling influences over normal tissue growth, giving as an example the growth of a kidney after excision of the opposite organ. There was sufficient evidence to show that cancer only occurred in predisposed individuals. In such he thought the balance between excitation and control was disturbed.

Mr. K. W. Monsarrat said that the parasitic forms described by Dr. Young bore a close resemblance to those which he himself had isolated from cases of breast cancer some years ago, the life cycle of which he had described. He did not hold the view that cancer was invariably due to parasitic invasion. It had been demonstrated that repeated or continuous irritation was capable of turning somatic cells from their orderly course into the cancer type, and he saw no reason to doubt that the long-continued stimulation of a parasitic invasion in an organ like the breast might also bring about the same revolution. He had demonstrated that under certain cultural conditions an organism could be grown from most cases of breast cancer which had a cycle marked by a characteristic pleomorphism. He considered that therapeutic and protective measures, in breast cancer at any rate, might be based on these observations.

Prof. Blair Bell paid a tribute to Dr. Young's work and said: "This work of Dr. Young has not escaped the traditional treatment of all originality. But I can assure Dr. Young, I believe in unison with everyone here to-night, that I sincerely hope he will not only prove his bacteriological thesis to those immediately concerned, but also that he will be able to show that the '*Fungus youngi*' deserves a place alongside the numerous other agents that are believed by some to cause cancer, but which I prefer to regard as producers of a common precancerous condition in the cell."

Prof. J. G. ADAMI said that from his own observations and from his knowledge of Dr. Young and the sincerity of his work he was wholly prepared to accept Dr. Young's observations upon the pleomorphism of the organism discovered by him in cancer of the breast. Those observations coincided strikingly with the earlier observations of Mr. Monsarrat made in the late Sir Rubert Boyce's laboratory 20 years ago. Monsarrat, indeed, had gone further and had evidently, by inoculation of his cultures, induced formative new growths of more than one order in the lower animals. To explain Dr. Young's results as due to imperfect technique was futile and in itself a confession of conservative ignorance, so vast of recent years had become the mass of similar observations by bacteriologists of recognised standing upon bacterial pleomorphism. But while making this acknowledgment, he was far from prepared to associate himself with Dr. Young in regarding this organism as in all probability the essential cause of cancer. Bacteria might be one cause.

Prof. ERNEST GLYNN stated it was generally recognised that bacteria were usually present in malignant growths. But this did not mean necessarily that they preceded the onset of malignancy. On the contrary, they were probably often secondary invaders, entering the growth not only from the surface but by the blood- or lymph-stream. The observations of Ford and others demonstrated that stray bacteria not infrequently enter the organs of healthy individuals. If, perchance, these bacteria reach a malignant growth, they would be more likely to survive and multiply there than in normal tissues.

Prof. C. E. WALKER said that while there was but little doubt that certain micro-organisms were among the causes of cancer, as they provided the necessary degree of prolonged irritation, it was difficult to believe that one particular parasite was the sole cause of cancer.

Prof. J. M. BEATTIE said that the weak point in Dr. Young's case was that he was not able to produce experimental cancer with his organism. Without agreeing with Dr. Young's view, there seemed no reason why his very careful and painstaking work should not be examined carefully without prejudice. No one could deny the possibility of bacteria, not necessarily a specific bacterium, giving rise to irritation and producing cancer just as tar did.

Dr. YOUNG, in replying, thanked the meeting for its generous reception of his work and for the encouragement it had given him.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

A MEETING of this section was held recently in the Royal College of Physicians, Dublin. Dr. L. CASSIDY, the President, occupied the chair.

Dr. BETHEL SOLOMONS read an abstract of a paper written by him and Prof. BRONTE GATENBY on the formation, structure, and physiology of the

Mammalian Corpus Luteum.

After a survey of the historical aspect, the theories as to the formation of the corpus luteum were discussed, and the conclusions arrived at by the essayists pointed indubitably to the fact that the membrana granulosa layer was the responsible factor in formation. The authors had investigated the action of liquor folliculi when given by mouth to humans and to rats. In the former it was tried for the hæmorrhage of puberty, adult life, and the climacteric; also for menopausal symptoms. It was without effect in all these conditions, as the hormone was probably destroyed by the digestive juices. They stated that later it would be tried hypodermically. On rats it had a great effect, and these experiments were intended to run parallel with those of Allen and Doisy, but the rats were fed instead of being injected. Generally speaking, the ovariotomised rats were affected sexually, and control animals which were not given the liquor were not affected: these investigations, however, were not yet complete. Corpus luteum when given by the mouth was useful in the treatment of scanty and absent menstruation. It was a valuable aid in the treatment of sterility, but of little service for menorrhagia and metrorrhagia. It was occasionally helpful in treating dysmenorrhœa. Menopausal symptoms were seldom relieved. It was successful in some cases of vomiting of pregnancy. When administered hypodermically it had cured some cases of severe vomiting and menstrual epilepsy. It was difficult to understand why corpus luteum administered by the mouth or hypodermically should cure amenorrhœa, considering its physiological action: this point required intensive investigation by the physiologist in combination with the gynæcologist. Theoretical explanations were either that the drug stimulated the ovary to action, or that the corpus luteum after administration acted in the same manner as the true corpus luteum. In the same way it was difficult to understand why corpus luteum given all through pregnancy should help in preventing still-births which usually occurred in the last two months. Possibly it produced a healthy corpus luteum which supplied the hormone necessary to the child from the seventh month onwards.

Prof. Gatenby then showed a number of lantern slides illustrating the formation of the corpus luteum in the human, pig, and duck-billed platypus. The theca interna elements in all these animals preserved their integrity until regression of the corpus luteum set in, so that the corpus luteum cells were really of single origin from the membrana granulosa. The corpus luteum of pregnancy was not always larger than that of menstruation. The presence or absence of fatty substances constituted no sort of index as to pregnancy or not. The theories of the action of the liquor folliculi and corpus luteum were discussed.

Discussion.

Prof. H. PRINGLE said that he did not agree with Prof. Gatenby in saying that the luteal cells originated only from the granulosa cells. He believed that the granulosa and interstitial cells originated from the luteal cells. If they had two separate origins, one would expect two specific hormones. There were three separate hormones: (1) The hormone of the interstitial tissue, (2) the hormone of the Graafian follicle, and (3) the hormone of the corpus luteum, and this hormone seemed to antagonise the second hormone. The observations which they had heard that evening from Dr. Solomons and Prof. Gatenby, seemed, he said, to be absolutely incompatible with this hypothesis. One of the most interesting features about the question of the effect of corpus luteum on stimulating ovulation was in cases where ovulation only followed coition. If a rabbit was allowed sterile coition, the corpus luteum following this was practically identical with the corpus luteum following pregnancy, and the corpus luteum persisted practically as long as if the corpus luteum ovum had been implanted. When the abdomen was opened, and the surface of the ovary was follicised, one introduced a factor which might be in every way compatible with sterile coition. It seemed to him that the whole question was still in a very unsatisfactory state, although Prof. Gatenby had added enormously to the knowledge which they had concerning the physiological changes which occurred in the corpus luteum.

Prof. J. M. O'CONNOR referred to the fact that physiology had developed greatly during the last century, and that it was now divided into two parts, one the movements of the body, and the other the development of the body. Attention was now given almost altogether to the mechanical stage of the body. Zoologists dealt with the actual living animals, and gynæcologists could not avoid studying them. The question of internal secretion, however, also had to be considered; he personally had no doubt that internal secretion was a genuine thing, and people had to be alive to its possibilities, but there was always a tendency to scepticism on this subject. He was interested in the statement that there was no interstitial tissue present in the ovary, as he had been led to believe that interstitial tissue was the most important thing that was present in the ovary.

Dr. W. M. CROFTON said that he had given internal secretion by the mouth in some cases and had got physiological results. He had also tried multiglandular preparations in some cases and had found them of great benefit. He wondered why the corpus luteum of pregnancy was so much larger, if the fœtus was to survive in the uterus. He thought that nervous mechanism had an important synchronising effect. If extracts of fresh glands were given before they were frozen, they were much more powerful.

Reply.

Dr. SOLOMONS, in reply, said that some of the speakers had mistaken his views with regard to pluriglandular therapy. Before the menopause he had found mixed gland preparations useless, and never prescribed them. At the menopause he did not order them often, but there were some patients who benefited by a mixed gland tablet which contained suprarenal gland, ovarian substance with corpus luteum, a little pituitary and thyroid extract. He did not consider this was a random shot; on the contrary, it was especially prescribed when the patient had symptoms suggestive of faults in the glands mentioned. While he had spoken of the possibility of trying luteum in the toxæmias of pregnancy, he did not intend to convey any idea that he would cease applying the proved successful methods of the Dublin School of Midwifery.

Exhibition of Specimens.

Dr. G. FITZGIBBON, the Master of the Rotunda, showed specimens from three cases of *Malignant Disease of the Genital Organs*, with direct extensions into the intestinal tract. These three specimens were of interest from the definitely gynæcological origin of the growths and the relatively simple symptoms which suggested uncomplicated gynæcological conditions. The only one in which any trouble outside the genital organs was to be expected was the first, and in it the operation decided upon was for the purpose of dealing with the possible extensions of the disease. The other two cases had serious extensions which called for further abdominal surgery, but the actual nature of the growths was not established for some days after the operations were completed.

The PRESIDENT, in discussing the cases, referred to the rarity of primary cancer of the vagina, and said that he thought Dr. FitzGibbon and Mr. Seton Pringle were to be congratulated on the excellent way in which they had dealt with this case, which must have been an extremely difficult one. Regarding the second case, when a woman of 50 suffered from regular hæmorrhage, and possibly a fibroid, he thought it certainly suggested cancer of the body of the uterus, and he thought that usually on clinical grounds this diagnosis could be made, without doing a primary curettage. The condition found in Dr. FitzGibbon's third case was also a rare one.

Dr. R. J. ROWLETTE said that judging by the slide which he had seen of Dr. FitzGibbon's first case, and also by the history, it was not a case of which one would take at once to be carcinoma, as it might be taken to be a far advanced papilloma. He thought it was more likely that the condition was a secondary implantation of papilloma than that it was primary cancer. During the time he worked in the Rotunda Hospital in 15 years they had only had about three cases of vaginal cancer.

Dr. FITZGIBBON then replied.

Reviews and Notices of Books.

STATUTORY RULES AND ORDERS.

Index to the Statutory Rules and Orders in Force on June 30th, 1924. Showing the Statutory Powers under which They are Made. Tenth edition. Edited by CECIL T. CARR, LL.D. Published by authority. London: H.M. Stationery Office. 1924. Pp. 842. £1 15*s*.

WHATEVER its theoretic disadvantage as a potential menace to civic liberties, the power to deal swiftly with sudden emergencies by means of Orders in Council or other departmental legislation is an indispensable weapon in the armoury of public health. Disease will not wait while Acts of Parliament are prepared and passed. Some ready mechanism for switching special restrictions and precautions on and off is essential, whether it is a question of quarantine provisions against cholera and plague, or of muzzling orders against rabies, or of restricting the movement of cattle in the hope of stamping out foot-and-mouth disease. We have come, too, to expect from the Ministry of Health or some other Government department regulations for the general and permanent protection of the public in matters such as factories and workshops, milk stores, dairies and cowsheds, adulteration of food, water-supply and rivers pollution, crematoria and burial-grounds, notification of diseases, registration of births and deaths, health insurance, vaccination, sale of dangerous drugs, and the like. The new edition of the official Index to Statutory Rules and Orders illustrates the remarkable development of regulation-making as a form of legislation. This well-known index was first published in 1891 under the direction of Mr. Alexander Pulling. The present (tenth) edition is edited by Mr. Cecil T. Carr. The book contains a systematic record of orders with their dates made under Acts of Parliament, arranged under alphabetical headings, showing also whether the power granted has been actually exercised and when. A valuable feature of the volume is the specific information of the Parliamentary powers under which the various rules, regulations, and orders are made. We see, too, the list of Orders in Council under which the Ministry of Health has taken over powers from the Home Office (under the Anatomy Acts, and as to lunacy, mental deficiency, and, in part, factories and workshops) and from the Board of Trade (as to water undertakings), while, on the other hand, the Ministry has surrendered the topic of public libraries to the Board of Education, that of gas undertakings to the Board of Trade, and that of elections to the Home Secretary. There are hundreds of Acts of Parliament which require to be construed in the light of these changes in our central authorities.

The Index, of which the ninth edition showed the position at the end of the year 1919, now speaks nominally to the position on June 30th last, though we notice many entries which bring the story down to the middle of August. While in the interval between the two editions much emergency legislation of war-time origin has disappeared, some of it was evidently too good to throw away. Thus various Defence of the Realm Regulations have taken permanent shape, as the Dangerous Drugs Act and the Firearms Act of 1920, and the Milk and Dairies Act, and the Sale of Tea Act of 1922. There seems to be a war-period Sale of Food Order still partially in force by virtue of the Expiring Laws Continuance Act. The present edition naturally excludes many orders relating to Ireland in matters now within the legislative competence of both the Irish Free State and the Government of Northern Ireland. It is odd, by the way, to find the Home Office in Whitehall responsible for the prevention of epidemics in Belfast.

We commend this publication to local authorities and public libraries, inasmuch as it contains in most convenient alphabetical form not only orders but much valuable information.

PRINCIPLES OF BIOCHEMISTRY.

Second edition. By T. BRAILSFORD ROBERTSON, Ph.D., D.Sc., Professor of Physiology and Biochemistry in the University of Adelaide, South Australia. London: Baillière, Tindall and Cox. 1924. Pp. 1065. 35*s.*

THE text of this volume is divided into six parts. The first deals with foods—proteins, fats, carbohydrates—together with their derivatives. The purely chemical considerations are full but elementary, and other valuable information could have been introduced without unduly increasing the size of the book if some of the philosophical arguments had been replaced by more practical material. A novel feature is the full treatment of mineral metabolism given in this section. Although some of the views expressed are not quite up to date, the description is certainly one of the best in any modern text-book.

One of the best sections of the work is that dealing with the chemistry of the proteins. The author presents the steps leading up to Fischer's synthetic work in a very clear manner. Part I. closes with a chapter on enzymes and one on digestion and absorption, both disappointing in that they are too sketchy; for instance, a large number of mathematical formulæ are given for heat inactivation and similar minor points, but only a page and a half is allotted to the bearing of hydrogen-ion concentration upon enzymes. We were unable to find any reference to pH in the book, and the treatment of ionic dissociation is not in line with modern teaching. Part II. is called "The Properties of Protoplasm." Under this heading are included colloids, osmotic pressure, and the physico-chemical basis of protoplasm. In Part III., dealing with blood and respiration and internal secretions, the work of Folin and his school on blood chemistry is ignored. The section dealing with the internal secretion contains a reasoned summary of the recent advances, with the exception of insulin, to which is allotted merely a few lines. There are no details, or even reference, to the methods of preparation, and no account of the properties or mode of action. This constitutes a rather serious omission. There is a very good account of modern views on oxidation. The remaining parts of the book deal with energy balance, excretion, and the like. An unusual factor is the inclusion of a chapter on memory and sleep.

The volume concludes with a kind of biochemical Nunc Dimittis called "The Outlook," wherein the author in somewhat exalted mood prophesies that "inexhaustible resources of wealth and power" will be laid bare as a result of the further study of biochemistry. Such extravagance is rather damping than encouraging to those who know well the difficulties of applying biochemical research to industrial problems. However, of the enthusiasm of the author for his subject there can be no doubt, and it is not unlikely that this enthusiasm will infect his reader.

PSYCHO-ANALYSIS.

Sigmund Freud, His Personality, His Teaching, and His School. By FRITZ WITTELS. Translated from the German by EDEN and CEDAR PAUL. London: George Allen and Unwin. 1924. Pp. 287. 10*s.* 6*d.*

EVERY writer on psycho-analysis invariably reveals part at least of his own personality, and Wittels here carries the revelation further and lays bare the intimacies of the psycho-analytical movement. Having quarrelled with Freud after five years of coöperation, and spent 14 years in a state of aloofness, he now writes a biography to which Freud himself adds a critical introduction. Opponents will welcome the account of the personal conflicts which led to the secession of Jung and Adler, but noting that the author emphasises the personal element and leaves the reader in the dark as to how far the antagonists are agreed on a basis of observation and how far their divergences are matters of theory. The peculiarities of Jung, Adler, and Stekel as described by Wittels accord with the impressions to be derived from reading their works. Stekel, for instance, is pictured as intuitive, one-sided, insistent and dogmatic, and his analyses are admitted to have no force in confirming the accuracy of psycho-analytical laws. A sympathetic but critical description of Freud presents him as self-contained and impatient of those who would divert him from the path he feels impelled to follow, even if the diversion is towards the goal he is seeking.

It is unfortunate that the author has found it necessary to give yet another exposition of psycho-analysis, an exposition useless to one familiar with the subject and worse than unconvincing to the general reader. The chapter on dream interpretation, for example, invites the most destructive criticism ever levelled at it. He claims more than once that psycho-analysis is a science, but takes no account of its relation to general science or medicine. Perhaps for this narrow outlook the attitude of orthodox medicine is not without blame, but it is none the less regrettable. The uninformed reader would gain no hint of the isolation of psycho-analysis from the world of medicine, an isolation to which Wittels is so reconciled that he seems oblivious of it. He pays tribute to Freud as a great man, but his greatness is measured only by comparison with his adherents or seceders, and the idea of greatness necessitates a wider view. The book is written frankly, and the author admits the limitations and bias resulting from his own temperament. It is interesting, and the translation is well done.

A Neglected Complex and its Relation to Freudian Psychology. By W. R. BOUSFIELD, K.C., F.R.S. London: Kegan Paul. 1924. Pp. 116. 4*s.* 6*d.*

Mr. Bousfield opens with a glowing tribute to the value of the structure of knowledge which Freud has built, and straightway smites him hip and thigh The "neglected complex" consists in a repression of the notions of moral law and moral responsibility, God as the source of moral law, a future life, of free will and telepathy, and in the first chapter we find that anyone predisposed is apt to seize upon the doctrines of the professors of materialism as affording an easy solution of the moral conflict. Freud is selected for attack as the possessor of a complex which in some form or degree is an attribute of many philosophers and scientific men much less in accord with him than the author claims to be. Certainly it is easier to attack Freud than, say, Spinoza, by raising the charge of immoral teaching, a charge supported by a truncated quotation on pages 16 and 80 which is grossly misleading; but this charge has so often been made that it cannot be said to concern a neglected complex. The complex comes into relation with theories of the origin of taboos and primitive beliefs, now the subject of lively controversy amongst ethnologists, though for the author the evidence shows that they correspond to "psychic facts" and were originally implanted in the human mind as germinal ideas capable of evolving with the physical and psychical evolution of men. "Psychic energy," too, presents no difficulties to him; as physical energy comes from the sun so must psychic energy come from an outside source, and "different people absorb supplies of psychic energy in different ways." Many problems would be solved if orthodox science could accept this simple pseudo-materialism. The book may appeal to those who consider any stick good enough to belabour psycho-analysis, but the stick is waved in too wide a circle.

Days Gone By in Central Africa.

Days Gone By; Being some Account of Past Years Chiefly in Central Africa. By J. E. Hine, M.D. Lond., Hon. D.D. Oxon. London: John Murray. 1924. Pp. 313. 16*s*.

Dr. J. E. Hine, like his famous predecessor Arnold de Villa Nova, is a doctor in the three faculties of divinity, law, and physic, and in addition is now the Bishop of Grantham. During some 25 years in Africa he has travelled on foot about 12,500 miles in the course of his episcopal duties, to say nothing of undertaking medical work in addition, and this book is a most interesting, simply written account of his experiences. Missions have their detractors as well as their advocates, but no one can fail to admire the real heroism with which these devoted men battle against climatic difficulties.

Dr. Hine naturally did not have to overcome so many trials as did men like Clapperton, Denham, Mungo Park, Livingstone, or Baker, but occasionally he had a most unpleasant time. His evidently keen sense of humour must have been a priceless asset. He gives an interesting account of his early days at Oxford, and mentions that he was ploughed in "Smalls." He was resident medical officer at the Radcliffe Infirmary, a post which he took after leaving St. George's, and later on worked as assistant to the late Mr. H. P. Symonds, being also an unattached student of the University reading for a pass degree. He mentions that at one time he was examined by three "eminent persons, all of whom I was then attending as a doctor." Dr. Hine was led to seek Holy Orders by hearing an address by Bishop Steere of the U.M.C.A., was ordained in 1886, and went in 1889 to East Africa, a country in which the notorious Dr. Carl Peters had already caused much trouble. He did not stay in Zanzibar long, but was soon sent up to Nyassaland. In due course he was consecrated Bishop of Likoma, later on of Zanzibar, and still later of North Rhodesia. Space fails us to follow the bishop through all his work and journeyings. Suffice it to say that his book is well worth reading. He tells many good stories, one of which we may quote. At Dar es Salaam there lived an Indian trader who had taken as assistant from the Zanzibar Mission School a boy who was not satisfactory. One day Dr. Hine received the following letter from the master:—

> Dear Sir,—I lodge my complaint against this boy Taje . . . I told him to go to the church to which he belonged, which he refused to do. Since that day I have kicked him out of my house. No sooner did this gentleman come here than he began to show signs of his character by assembling a crowd of negresses before my door at midnight, and himself playing a mouth harmonium after I had gone to bed, notwithstanding he knew my wife was ill and confined of twins.

To those advocating the use of music in medicine we commend this story.

Outlines of Organic Chemistry.

By E. J. Holmyard, M.A., F.I.C., Head of the Science Department, Clifton College. London: Edward Arnold and Co. 1924. Pp. 468. 7*s*. 6*d*.

The author is an enthusiastic advocate of the teaching of organic chemistry, which in his opinion is "one of the most delightful branches of learning which it is possible to imagine." The book represents the course which he has given for some years to senior boys and to medical students, and from the somewhat unconventional and at times almost "breezy" style of the book one may conclude that the writer has the gift of appealing to the imagination of a junior audience. The book is divided into five parts, of which the first is devoted to methods of analysis and elementary theory, while the second deals with more advanced theory, including the Lewis-Langmuir electronic theory of valency. The remaining parts follow the conventional lines of division into aliphatic, carbocyclic, and heterocyclic compounds. Much of the matter is, of necessity, dealt with in a sketchy manner. The author's partiality for the historical aspect is betrayed in frequent references, anecdotal and otherwise, to the origin of terms and discoverers of reactions, and in the inclusion of six full-page likenesses of distinguished chemists.

Plant Anatomy.

Fourth edition, revised. By William Chase Stevens, Professor of Botany in the University of Kansas. London: J. and A. Churchill. 1924. With 155 illustrations. Pp. 398. 18*s*.

This is practically the only text-book in English on plant anatomy. As stated in the sub-title, it has been written from the standpoint of the development and functions of the tissues, and this accounts for the inclusion of a section on pedigree hybrids in which the work of Mendel is dealt with at rather greater length than might be expected in a book on anatomy. The work is almost too elementary, but the conventional diagrams certainly help to explain clearly the principles of plant anatomy. The author has included chapters on the use of the microscope, on reagents and processes, and on the detection of adulterations in foods and drugs. It is to be regretted that these sections have not received a drastic revision in this, the fourth, edition of the work, for many of the statements made are inaccurate or misleading, and some of the tests mentioned are either unworkable or obsolete.

JOURNALS.

Military Surgeon. November.—The *Military Surgeon* for November has a number of interesting articles, opening with an account, by Surgeon-General Dr. Bulius, German Army, of the Medical Service of the Third German Army in the Battle of the Marne, 6th–10th September, 1914. Apparently the German medical service had hardly been organised to do duty in an advance so rapid (though their wounded then lacked nothing, as well-supplied medical depôts were captured in that advance); nor were they adequately prepared to function in a retreat, when, for want of motor ambulances, they had to relinquish wounded and medical officers to the rapidly advancing enemy. German stretcher-bearers were surprised, it is noted, to find, on Sept. 8th, that "the wounded French soldiers . . . . apparently feared they would be murdered. Such ideas must have originated with their own troops, for German litter-carriers have never violated their duty."—Lieut.-Commander R. F. Jones, M.C., U.S. Navy, observes that there was much less venereal disease in that navy in 1917 and 1918 than either before or since, which he ascribes to the control of prostitution in the United States during the war. The venereal-rate is far higher for the force abroad (15 per cent.) than at home (7 per cent.), from which he concludes that the control of venereal disease is not possible in the navy without help from the Government through the control of prostitution.—P. P. Jacobs, Ph.D., discusses tuberculosis as a war problem, concluding that there was no spread of tuberculosis in the war, either in the army or the navy. The endeavours to prevent colds, measles, mumps, and similar troubles also reduced fresh tuberculous infections, while good food and fresh air and exercise helped men to resist commencing infections. Health education also played a beneficent rôle. Poisonous gas did not increase liability to tubercle among its victims.—Dr. J. M. Swan, of New York, gives reasons for approving the Dreyer method for the determination of physical fitness, and Captain I. F. Peak, M.C., U.S. Army, in a valuable paper, shows what a help the word-association test may be in determining whether a recruit aviator is really fit to fly.

THE LANCET.

LONDON: SATURDAY, DECEMBER 27, 1924.

LEVANTINE POST-WAR HEALTH PROBLEMS.

British investors recently vied with one another in an endeavour to place some of their capital in the Greek loan, and we may hope that some of them are as interested in its humanitarian as in its financial aspects. Investors are assisting indirectly in a great public health experiment resulting from the displacement of population involved by the late Greco-Turkish war. The Treaty of Lausanne requires members of the Greek Orthodox Church established in Turkey to emigrate to Greece, and Moslems established in Greece to emigrate to Turkey. The total number of refugees so added to the population of Greece amounts to about one and a half million, which is considerably more than 20 per cent. of the total population of that country. Over a million of these refugees, on arrival in Greece, were practically destitute and in urgent need of assistance; during the first months their situation was appalling. The emergency measures hastily improvised by the Greek Government, aided by the invaluable work of American and British Charitable Societies, particularly the American Red Cross, the Near East Relief, the All-British Appeal, and Dr. Nansen's Agency, were successful in relieving immediate distress, but it was obvious that the definite settlement of all suitable refugees in productive work could alone give a permanent solution of the problem. It is believed that the majority of the refugees are of good material, and capable of supporting themselves on the land or in industry if given a reasonable start; it is said that, once supplied with land and a modest equipment, the average refugee "makes good" with remarkable rapidity. The Greek Government has undertaken to provide not less than 500,000 hectares (or about a million and a quarter acres) for settlement purposes. The present external loan provides the means for accomplishing the immense task. It is predicted that great economic results will follow the completion of the scheme of settlement; it is said that the refugees have already transferred to Greece the whole of the rug trade of Asia Minor, that the silk industry has been uprooted and planted afresh in Greece and is becoming firmly established, and that an even more important development will be the production of cereals to an extent which is expected to make the country entirely self-supporting in this respect and in a position to export.

But it must not be forgotten that these economic results will depend very largely on whether the settlers can be kept in reasonably good health in their new surroundings and changed climate and conditions. About 90 per cent. of those who are cultivators are being settled in Macedonia and Western Thrace, which are probably the most malarious regions in Europe. And it is only necessary to recall what happened to the British, French, Bulgarian, and Greek forces who were engaged in the Macedonian area during the war to realise how greatly the prevalence of malaria in an endemic area may be increased by the introduction of numerous new-comers. Evidence that similar disasters can occur in peace time was provided in the summer of 1923, when the arrival of very large numbers of refugees was followed by a malarial epidemic comparable in severity with any preceding outbreak. The refugees who are not cultivators, and therefore must be absorbed in industry, are in some respects worse off than the rural refugees, for many thousands of them are at present lodged in warehouses, improvised dwellings, and temporary huts in Salonika, Athens, and the Piræus under sanitary conditions which leave almost everything to be desired. In Salonika alone during 1923 the number of refugees admitted to hospitals was 15,356, of whom 2072 died. Tuberculosis, malaria, dysentery, enteric fever, and other intestinal diseases prevail among them. It is not known whether any part of the present loan will be allocated to medical and sanitary arrangements in connexion with the settlement of the refugees, but it seems clear that, unless very special attention is given to those matters, the prosperity which has been so glowingly prophesied may be accompanied by great wastage of life and may be long delayed. At present public health organisation in Greece is in a very backward—indeed almost primitive—state, and it is greatly to be hoped that the authorities concerned will seize the present occasion to create a well-trained public health service equipped with means and materials for applying the principles and practice of modern preventive medicine to the many urgent problems which confront them.

In exchange for about one and a quarter million non-Moslems, Turkey receives only about 300,000 Moslems from Greece. The population of Turkey has also been reduced by war service on many fronts and by hostilities on the spot. Depopulation is therefore the great public health problem in Turkey to-day. It is particularly marked on the coast, where the Greeks used to predominate, and in the Meander and Hermus valleys, which were ravaged by war. The pre-war population of the Smyrna district was roughly two and a half millions, but 40 per cent. of the people were non-Moslems. With the exception of a few thousand Jews all these have gone, the result being that the population of the richest part of Turkey cannot now be more than half what it was in 1914. Agriculture and industry are greatly diminished, and in districts where the finest grapes were grown vineyards are running wild. There are no official statistics, but it is said that the prevalence of various epidemic diseases contributes greatly to the alarming reduction of population. Malaria prevails everywhere except in Smyrna itself; tuberculosis has a high incidence and fatality in towns, and venereal diseases are rife in both towns and villages; enteric fever causes a heavy mortality every summer, especially among children. Except in Smyrna and one or two other of the larger towns there are few doctors, and there is everywhere a great lack of drugs. Bread is dear and, although the Anatolian Turk is naturally very hardy, the present conditions of poverty and undernourishment favour the spread and fatality of all forms of disease.

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CANCER STATISTICS AND STATISTICIANS.

Cancer statistics offer an inexhaustible attraction to a certain uncritical type of mind. It is not difficult to understand why that should be so. All figures relating to the mortality or to the incidence of cancer are vitiated by fallacies well known to responsible statisticians and all pathologists. The main fallacy arises from the difficulty of correctly diagnosing cancer. Conclusions based on the post-mortem records of the big teaching hospitals in this country, on the continent, and in the United States, disclose an error, due to mistaken diagnosis, amounting to 30 per cent. under the most favourable conditions. The magnitude of this error impresses the pathologist in the post-mortem room; it is only human nature that it should not carry the same weight with clinicians. The pure statistician—that is to say, one who has not had a proper medical training—seems altogether unable to appreciate its significance. The general effect of this fallacy is that the recorded mortality from cancer varies from locality to locality and from country to country with the efficiency of the medical service of the community, and that nowhere does the recorded mortality from cancer reach the actual incidence of the disease. When we compare the incidence of cancer in civilised communities with that in uncivilised communities another fallacy arises. Cancer increases in frequency as age advances. In order to make a comparison it is necessary, therefore, to compare persons of corresponding age. It is of the essence of an uncivilised community that there are no records available which would enable such a comparison to be made. All we know is that in an uncivilised community people die at an earlier age, so that in such a community the total number of cases of cancer, if they were diagnosed with the same degree of accuracy as in a civilised community, must necessarily be less. It is also of the essence of an uncivilised community that there is no efficient medical service.

Appreciation of these statistical fallacies does not require a deep knowledge of statistics. It comes from common-sense deductions following a knowledge of the clinical and pathological features of the disease. But common-sense and knowledge are conspicuous by their absence in the equipment of the enthusiasts who spin their hypotheses from the statistical data on cancer. And it is of such stuff that discoveries are made. We have been assured that cancer is due to an excessive intake of the growth-promoting vitamins and we have been told that vitamin-starvation is an important ætiological factor. We are informed that the negroes of Central Africa are free from cancer. The same freedom is said to be enjoyed by the Eskimaux, and an appeal for funds was made recently by the British Empire Cancer Campaign to send out an expedition to wrest from those clever savages the great secret. Quite recently the discovery has been made that the mortality from cancer is much less among the inmates of lunatic asylums than among the general population. The obvious explanation that a person afflicted with a chronic disease which is undermining his health is more likely to die from the direct or indirect effects of that disease than from another unrelated disease does not seem to have occurred to the authors of this "discovery." Civilised mankind, if it is to be saved from cancer, has, therefore, now the choice either between living like the natives of Central Africa and the Eskimaux—a difficult combination—or to adopt the mode of life of the inmates of a lunatic asylum. The moderation and restraint which the various writers impose upon themselves are alike admirable, for the subject teems with other possibilities. Let us consider a few. No cases of cancer have ever been reported from cannibal tribes. This suggests that either the ingestion of autologous protein confers immunity against cancer or that human flesh contains a protective substance, which, when ingested, confers immunity against cancer, although it does not protect the individual itself in whose body it exists. Again, no cancer has ever been found in the large man-eating carnivora, such as the lion, the tiger, as long as they exist in their normal habitat and have the opportunity of devouring man. But when they are kept in a zoological garden and thus come in contact with civilisation they have been known to develop cancer. This lends further support to the view of the existence of a protective substance in human flesh—perhaps a new vitamin. Common-sense might object that the lack of evidence concerning the occurrence of cancer among cannibals and the large man-eating carnivora is due to the investigators having been eaten. But such an objection may be brushed aside as being due to prejudice and inability to follow new lines of thought.

That, at any rate, is the kind of argument by which Dr. F. L. Hoffman, of New York, a statistician who is not a medical man and who recently has embarked on a Cancer Survey of San Francisco, disposes of the objections to the taking of a cancer census which have been raised by statisticians who, we must guess, are impeded by having a first-hand knowledge of the pathological and clinical aspects of the disease. In the First and Second Quarterly Reports which have just been issued, he writes as follows: "Dr. Bashford, while Director of the Imperial Cancer Research Fund, was decidedly opposed to the taking of a cancer census .... but Dr. Bashford never fully explained his objections, based unquestionably largely upon prejudice and indifference to the results available." The objections of Dr. Bashford are very clearly and explicitly set forth in the Second Scientific Report of the Imperial Cancer Research Fund, and the decision not to hold a census was arrived at by Dr. Bashford in conjunction with the Statistical Subcommittee of the Fund which counted among its members the most distinguished medical statisticians available at the time. In addition to the usual kind of statistical data collected by Dr. Hoffman, he has also sent out questionnaires to every practitioner in San Francisco. It is not stated how many hundreds or perhaps thousands of these forms have been sent out, but there is a statement how many have been returned —25. On the basis of these 25 questionnaires, Dr. Hoffman writes as follows: "The available questionnaires justify some very striking and definite conclusions, emphasising the overshadowing importance of a superabundant meat diet, an excessive amount of sugar, excessive habits of smoking, and exposure to gas and fumes on the part of men in certain occupations. The questionnaires further emphasise the practically universal coexistence of dietary and metabolic disorders, with resulting intestinal complaints. The replies also seem to prove definitely that in many cases there was a coexistent, or a concurrent, rheumatic affection." Has it occurred to Dr. Hoffman that experienced surgeons may see a hundred and more cases of cancer in one year and that so far their clinical experience, extending over thousands of cases of cancer, has failed to establish such simple relationships?

THE BIOCHEMISTRY OF HONEY.

In a letter which appears in our correspondence columns, Dr. G. N. W. Thomas calls attention to the valuable properties of honey in providing a readily absorbable food. The properties of this ubiquitous substance do not appear to be set out in the usual works of reference.[1] The composition of honey is not only very complex, but differs widely according to its source. The water content may vary as much as 12 per cent., the average gravity being 1·46 at 15° C.

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[1] Information is given in—(1) Abderhalden's Handbuch der biologischen Arbeitsmethoden; Nahrungs- und Genussmittel-Untersuchungen, pp. 977 to 1050. (2) Abderhalden's Biochemisches Handlexikon, vol. ii., p. 179. (3) O. Hänle: Die Chemie des Honigs, Strasbourg, 1892. (4) O. Hänle and A. Scholz: Zeitsch. f. Untersuch. der Nahrungs- u. Genussmittel, 1903, vi., 1027.

An average of 30 analyses of different specimens gave the following percentage result :—

Water	17·2	Malic acid	0·30
Lævulose	39·1	Acetic acid	0·20
Dextrose	34·0	Wax	0·90
Dextrin	0·45	Proteins	1·80
Sucrose	0·40	Mineral salts	0·75
Formic acid	1·10	Undetermined residues	3·80

The mineral salts included Ca, Fe, Mg, PO_4 radicles and a trace of iodine ; among the undetermined residues were resins, gums, pigments, and volatile oils.

Honey is thus seen to consist of a complicated mixture of carbohydrates, of which monosaccharides form by far the greater part. Lævulose and dextrose present, taken together, exceed a hundredfold the dextrin and sucrose. Owing to the relatively low water content, the caloric value of honey is very high ; 1 ounce corresponds to about 100 calories, nearly as much as the same amount of pure cane-sugar. Of the origin of the various constituents little is known. The lævulose, and to a certain extent the dextrose, are derived directly from the nectar and juices of the plant. The origin of the dextrin is still obscure, although it seems to be one of the simpler bodies of its kind with the formula $(C_6H_{10}O_5)_3$, and is said to be readily absorbed from the alimentary canal. The proteins are derived from the pollen of plants. The wax appears to be a specific product of bee metabolism, and the production of honey and wax vary inversely ; as soon as the quantity of wax increases, the supply of honey begins to fall off. The most important constituent of wax is a palmitic ester of myricyl alcohol, $C_{30}H_{61}OH$. Other esters, such as those of cerotic acid and various fatty acids, also occur. The percentage of organic acids, such as malic, acetic, and formic acids, is high and may amount to as much as 2 per cent. in some specimens. With regard to the vitamin-content, it has been stated that honey contains both the fat-soluble and water-soluble principles, and is efficient in warding off deficiency diseases. Various enzymes, such as invertase, are present. The nectar, containing fairly high proportions of sucrose, is digested in the crop of the bee by means of invertases secreted by glands in the head and thoracic region. This digestion, however, is incomplete in the bee itself, and continues after the honey has been deposited in the hive.

On these findings honey constitutes a valuable food, since it contains carbohydrates in a form suitable for direct absorption. The claim is made that honey never gives rise to fermentation in the alimentary canal, since the dextrose and lævulose, being monosaccharides, are absorbed so rapidly that there is no time for bacterial action. This would commend it for infants and children. The fatty acids may have their use in stimulating peristalsis and digestion. Honey, therefore, compares favourably with glucose B.P., which contains only about 35 per cent. of monosaccharide in the form of dextrose and lacks the valuable proteins, fats, and inorganic salts which are present in honey. It would appear, therefore, that Dr. THOMAS'S plea for the extended use of honey has sound biochemical basis.

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THE High Commissioner for Southern Rhodesia, Sir Francis Newton, has recently submitted to the London School of Hygiene and Tropical Medicine a proposal which was made originally on the initiative of the Medical Director for Southern Rhodesia, Dr. Andrew Fleming. The school authorities have agreed to send out research workers to investigate diseases common to Rhodesia and to tropical and subtropical South Africa. The Government of Southern Rhodesia for its part has undertaken to make a generous contribution to the school for the purposes of this research work, and to provide laboratory accommodation and equipment. By its recognition of the immense importance of research into the causes of those tropical diseases which now bar the way to the full development of the highlands of Central and Equatorial Africa, the Government of Southern Rhodesia has given a lead to other Colonial Governments.

Annotations.

"Ne quid nimis."

SPLANCHNIC ANALGESIA.

THE merits of splanchnic analgesia for severe operations in the upper abdomen were well shown by papers read before the Section of Anæsthetics of the Royal Society of Medicine on Dec. 12th by Mr. O. S. Hillman and Mr. R. E. Apperly. Following the work of Kappis and of Labat the method has been already fairly extensively employed on the continent, but the papers referred to are the most notable contribution to the subject as yet brought forward in this country. The cases on which these papers were founded numbered 91, and it is noteworthy that they included only one fatality from post-operative chest complications. This and operative shock are the chief dangers in extensive operations on the upper abdomen. Shock is also most decisively decreased by blocking the splanchnic nerves. The method has shown conclusively that afferent impulses do pass from the viscera, along the nerves in the mesentery, and these impulses are effectively blocked by splanchnic injection. Comparing two series of cases of partial gastrectomy the authors showed that without nerve-blocking the mortality was 12·9 per cent. but with it only 3·2 per cent. Again, blood transfusion was needed in 14 cases when there was no nerve block ; only in two cases when this method was employed. The authors are in favour of a light ether anæsthesia during which injections are made to block the anterior abdominal field and then the posterior splanchnic areas. The solution employed is 1 per cent. novocaine without adrenalin. Generally, 25 c.cm. are injected into each splanchnic area. The point of injection is 7 centimetres outside the first lumbar spine. An important point in the technique is to aspirate with the syringe before injecting. If blood is aspirated, showing that the needle has pierced a vessel, no injection is made until the needle has been reintroduced. The fatal effects of injecting novocaine into a vein were well shown by experiments related by Mr. Stanford Cade in the discussion which followed the papers. The authors had at first relied entirely on local injections, preceding these by two injections of morphine and scopolamine. They find that better results are obtained by using a light ether anæsthesia which is preceded only by one injection of morphine and atropine. Post-operative headache and backache have occurred. It is important to avoid raising the shoulders after the injections have been made. Mr. Gordon Taylor, who had operated on many of the cases reported on, spoke enthusiastically of the merits of splanchnic analgesia for severe operations on the upper abdomen. The series included cases in which, in his opinion, operation could not have been attempted without its aid.

PATENT MEDICINES.

Sir Thomas Horder, in an article entitled "Secret Remedies" published in the current issue of the *Cambridge University Medical Society Magazine*, comments on the lack of concerted effort since the war on the part of the press to check the evil of quack nostrums. During the ten years just prior to the war, however, a vigorous effort was made by the medical and the lay press alike to check the abuse, which had grown to huge dimensions, of the manufacture, advertisement, and sale of secret remedies. Following shortly upon this campaign—doubtless in large part due to it—the House of Commons appointed in 1912 a Select Committee "to consider and inquire into the question of the sale of patent and proprietary medicines and appliances, and advertisements relating thereto, and to report what amendments, if any, in the law are necessary or desirable." Unfortunately for the effectiveness of the Committee's work, this report was ordered to be printed on August 4th, 1914, when the greater problem of the quackery of "Kultur" overshadowed all else in the public mind. Like so many other things achieved just prior to the war, Sir Thomas Horder remarks, nothing has been done with regard to the Committee's recommendations so far, and then proceeds to survey the law in relation to secret remedies, which, he said, showed very clearly that in Great Britain the loosest possible control was exercised, far looser than in the majority of foreign countries. None of the Acts of Parliament, nor departments of State, nor statutory bodies controls in any particular, save that of selling poisons without declaring their presence, the vast trade done in patent medicines. The State seems to limit its responsibility to the public to accepting a stamp duty, the scale of which has remained unchanged since 1804. Two significant anomalies may be mentioned: (1) That the Sale of Food and Drugs Act, under which it became an offence to give with any article sold a label falsely describing such article, specifically states that an offence shall not be deemed to be committed "where the drug or food is a proprietary medicine or is the subject of a patent in force"; and (2) that the Indecent Advertisements Act specifically excludes advertisements in newspapers. It was revealed by the Committee's report that no department of State officially concerns itself with the sale and advertisement of secret remedies. The Home Secretary has no powers or duties, and proceedings for fraud against the proprietors or vendors on the ground that they cannot cure the diseases they mention are practically unknown. The dimensions of the trade thus uncontrolled are stupendous. The annual turnover of the proprietor of "Beecham's Pills," selling over a million pills a day, was, Sir Thomas Horder states, about £360,000. The owners of "Mother Siegel's Syrup" paid upwards of £40,000 a year in wages alone. "Wincarnis" spent £50,000 a year in its advertising bureau. As for the profits made, these run often into fabulous sums, as can be seen from the fact that the proprietor of "Dr. Williams's Pink Pills for Pale People"—George Taylor Fulford—left a fortune of £1,111,000. In the face of vested interests of such magnitude it is clear that any interference on the part of the press calls for no small amount of courage and no little confidence in the ultimate good sense of the public.

THE EXPECTATION OF LIFE AFTER A RECOVERY FROM AN EMPYEMA.

There is still some uncertainty, from the life insurance point of view, about the future of persons who have recovered from a non-tuberculous pleural empyema. It is believed in some quarters that these persons are more likely to develop pulmonary tuberculosis than others, and that for this reason they are not acceptable as first-class lives. Some life insurance societies attach the same prognostic significance to a history of non-tuberculous empyema as they do to one of serous pleurisy, and in so doing they bracket the former with one of the most ominous precursors of pulmonary tuberculosis. For, as Allard and Köster have shown, over 42 per cent. of persons with a history of serous pleurisy develop pulmonary tuberculosis within 16 years of the onset of the pleurisy. But are we justified in lumping purulent and serous pleurisy together as far as the expectation of life is concerned? The answer is in the negative, to judge by a paper recently published by Dr. F. Saltzman and Dr. O. Sievers.[1] They investigated in 1922 and 1923 the subsequent fates of the patients treated in the period 1902–1912 for empyema in two surgical hospitals in Helsingfors. They excluded from their investigations the cases terminating fatally in hospital and those which were already of a tuberculous character, confining themselves to the cases in which a complete recovery was effected as far as the empyema was concerned. There were 201 such cases, the subsequent fate of 128 being ascertained from 10 to 20 years after discharge from hospital. In most of these cases the empyema had been acute, presumably metapneumonic. A comparison of the deaths among these patients with the expected death-rate of the total population at the same age showed that the mortality among these ex-empyema patients was about 20 per cent. above normal. This rise in the mortality-rate began about five years after the empyema was contracted and continued during the following five years; ten years after recovery from an empyema it would seem that the expectation of life is practically the same as for the total population. This increased mortality did not seem to depend much, if at all, on tuberculosis; among the 128 patients who were traced, there were 19 who were found to have died, and of these 19 only three were certainly known to have died of tuberculosis. There were, however, five deaths due to unknown causes which in one case may have been tuberculosis, but four tuberculosis deaths out of a total of 19 deaths is not a comparatively high tuberculosis-rate, at any rate in Helsingfors, where, in 1916, 26·5 per cent. of all the deaths were due to tuberculosis. To illuminate the problem from another angle, Dr. Saltzman and Dr. Sievers have investigated the case-records of 3557 patients treated in a sanatorium for pulmonary tuberculosis. In only four of these cases was there a record of an empyema developing before the onset of signs of pulmonary tuberculosis. Paxadoxical as it may seem, the ultimate prognosis, according to the investigations of these Scandinavian authorities, including Allard and Köster, is much worse for a simple serous pleurisy requiring no operative treatment or merely aspiration, than it is for the patient who recovers from a stormy purulent empyema necessitating the intervention of the surgeon.

COLLOIDAL COPPER INJECTIONS IN MALIGNANT DISEASE.

In the course of a presidential address delivered before the Cardiff Medical Society on Nov. 11th, Dr. E. E. Brierley expressed a conviction that many patients who had undergone operations for carcinoma would have had a better chance of survival if a course of colloidal copper injections had been given after operative treatment. He gave notes of patients in whom this treatment appeared to be successful. Two cases of nodular growths in the breast with secondary glands in the axilla, in which operation was refused, were treated by him with intramuscular injections of colloidal copper; the growths and the glands disappeared after a course of injections extending a little over a year. Both patients are still alive and well, ten and seven years after the commencement of the treatment. A patient with a large scirrhus carcinoma of the breast had her breast removed and the axilla cleared in November, 1916. The supraclavicular glands on the same side were found to be enlarged when she was seen by him in February, 1918. Intramuscular injections of colloidal copper were given over a period of eight months; the glands disappeared and the patient is still alive and well. A patient, aged 62, who gave a history of hæmorrhagic vaginal discharge over a period of two years, called him in on account of excessive flooding. Vaginal examination demonstrated the clinical signs of cancer of the cervix. Operation was refused but consent was given for intramuscular injections of colloidal copper. After seven injections the hæmorrhage and discharge had ceased and the patient refused further injections. On examination the cervix was found to be healed and smooth. This patient died away from home nine months later from a "stroke," no return of the vaginal discharge having occurred. A patient who had her breast removed and the axilla cleared out for medullary cancer in August, 1919, dreaded a recurrence; she submitted to a course of colloidal copper injections over a period of three months. The patient has had no recurrence and is alive and well. Another patient had the right breast removed and the axilla cleared for medullary cancer on Feb. 1st, 1920. As there was a small nodular lump in the left breast with enlarged glands in the axilla, and the patient did not wish a second operation, a course of colloidal copper injections were given over a period of three months; the nodular lump and glands disappeared. In September, 1923, the patient returned on account of some enlarged glands in the right supraclavicular region. After a course of colloidal copper injections over a period of four months the glands subsided. The patient is alive at the present time, in excellent health, and no glands can be felt. Two cases of advanced and inoperable carcinoma of the rectum had been treated by him; one improved and put on weight but died in 12 months, the other received no benefit. Dr. Brierley referred also to a case of inoperable cancer of the rectum treated by colloidal copper and selenium, reported by Lionel Norbury in the Proceedings of the Royal Society of Medicine, June, 1923. After treatment for over two years no growth or ulceration could be seen or felt and the general health of the patient was good. Dr. Brierley urged the trial of colloidal copper after operations for cancer and in inoperable cases, emphasising the need of perseverance in the treatment, even if there was no immediate improvement, until the patient was cured or refused further treatment, or until his condition became hopeless.

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[1] Finska Läkaresällskapets Handlingar, September-October, 1924, p. 718.

MEAT POISONING IN PRUSSIA.

A RECENT article[1] by Prof. O. Lentz supplies a good deal of information upon outbreaks of meat poisoning occurring in Prussia between 1907 and 1924 and incidentally throws some sidelights upon the shortage of meat in that country during and after the war. By virtue of an enactment of August, 1905, outbreaks of meat poisoning in Prussia have to be reported by the district medical officers to the appropriate Government department. These reports, although showing some omissions, are available for a survey of the causes and course of these outbreaks. Lentz gives the following table:—

Year.	No. of out-breaks.	Approx. total no. of cases.	Deaths reported.	Year.	No. of out-breaks.	Approx. total no. of cases.	Deaths reported.
1907	10	294	1	1916	7	906	1
1908	5	283	3	1917	8	1119	19
1909	4	111	3	1918	2	433	20
1910	6	395	2	1919	8	530	9
1911	4	156	2	1920	18	1016	12
1912	8	667	6	1921	34	1934	17
1913	8	928	3	1922	55	2633	18
1914	5	269	6	1923	36	2095	8
1915	—	—	—	1924*	7	52	4

* First four months.

While the majority of outbreaks are ascribed to infection with bacilli of the paratyphoid-enteritidis group, eight are credited to *B. proteus* and 24 as examples of botulism. In only one of the latter, however, was *B. botulinus* isolated with certainty, while in two others anaerobes of the type of this organism were present.

The causation of this serious rise in the number of outbreaks is discussed by Lentz. While admittedly some of the outbreaks were associated with the use of food which was perfectly sound, in the majority the meat consumed was derived from animals definitely diseased. In pre-war times such food was very rarely passed and allowed to be eaten, but in consequence of the great shortage of meat during the war and in the after-war period, especially during the years of inflation, more and more necessity-slaughtered meat and meat which eluded inspection altogether was sold for human food. According to Lentz, this assumed very large proportions, and he quotes various reports as bearing out this contention. For example, in the Berlin Kadaververwertungsanstalt during the year 1914, 4,500,000 kilos of animal carcasses and decomposed meat was dealt with, while in 1923 the corresponding amount was only 730,000 kilos. The natural suggestion that during this later period proportionately fewer animals departed this life is countered by the statement that during and after the war, especially during the inflation time in Berlin, a great deal more sausage meat was actually consumed.

Negligent inspection must, in Prof. Lentz's view, bear a large part of the blame for this increase in meat poisoning. In many cases, in spite of offensive septic and other conditions in the animals, the meat had been stamped as fit for food. He gives an instance of a veterinary inspector passing the meat of a cow, in spite of the presence of a much enlarged spleen and small hæmorrhages upon the serous membranes. Two of the slaughtermen concerned subsequently fell ill with anthrax and one died. In spite of repeated reminders from the central authority, bacteriological investigations of suspicious cases are seldom resorted to, and usually the guide utilised is merely the colour and consistency of the flesh. Another instance given is one in which the meat inspector passed meat as fit for use which was definitely suspicious, the only test employed being that he and his family ate a piece of it, his only proviso that it was to be well cooked. This meat caused an outbreak of meat poisoning, due to *B. enteritidis*, involving 62 persons. In only two instances from the many reports is it mentioned that severe offences against the regulations have resulted in the removal of the meat inspector from his office. Legal proceedings against offenders have been quite ineffectual. Lentz presses strongly the need for routine bacteriological examination of all necessity-slaughtered animals before being passed for human consumption. These facts suggest the reflection that the relaxation of a rigid system of meat inspection amongst a people accustomed to be guided by rule is likely to be fraught with greater risk of disaster than a limited inexact system of inspection amongst a community forced to exercise discrimination of their own.

THE VISCOSITY OF PROTOPLASM.

THE physical properties of protoplasm continue to exercise the minds of research workers year by year in the light of new knowledge. Especially important at the present time is the increased study of all histological processes by means of physical methods, witness the whole range of research which has been produced by the introduction of the dark-ground illumination apparatus. The current number of the *British Journal of Experimental Biology* (October, 1924) contains an article by Mr. William Seipiz on a method of studying the elastic properties of protoplasm which throws further light on the viscosity of this substance. Briefly put, the method used consists in suspending a minute particle of a magnetic needle, with the aid of microneedles, in the colloidal protoplasm. By means of an electro-magnet the particle is then attracted until the colloid is stretched to a maximum amount, whilst on release of the magnetic force the particle will return to its original position. The distance over which the particle has travelled in one direction is a measure of the stretching capacity of the substance. The force necessary to produce this stretching is a measure of the elasticity. Of course, a special arrangement of microdissection instrument, microscope and magnet, is necessary for the experiment. The metal particles used were obtained from nickel powder, and the protoplasm selected was the mature unfertilised egg of the sand-dollar, *Echinaraclinius parma*, which is resistant to ill-treatment. As the writer himself points out, the difficulty which confronts the worker on protoplasm is that of deciding with certainty whether the protoplasm is living and normal at the time of observation or not. Numerous safeguards were, therefore, necessary before the author could arrive at the result of $9\,\mu$ as the stretching value of this particular kind of protoplasm, whilst the force applied could only tentatively be estimated.

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[1] O. Lentz: Ueber Fleischvergiftungen, 1924, Zeitschr. f. Hygiene und Infekt., ciii., Part 2, p. 321.

Nevertheless, these experiments are of value as having a bearing on the general question of the structure of protoplasm. It has been customary for some time to regard protoplasm as a fine emulsion, but emulsions are not elastic, and the author therefore regards this demonstration of the elasticity of protoplasm as a proof that protoplasm is not, from the point of view of its colloidal nature, a fine emulsion.

RADIUM THERAPY.

ANYONE wishing to know what sort of diseases are likely to be benefited by radium treatment is recommended to study the Medical Research Council's Special Report No. 90 on the medical uses of radium, reviewed on p. 1353 of this issue of THE LANCET. A large quantity of radium has been distributed by the Medical Research Council to different research centres, at each of which a definite scheme of investigation has been commenced into the radium treatment of certain malignant and non-malignant tumours. It is only through distribution by a central authority, such as the Medical Research Council, that this very precious substance can be employed where it is most needed. The minute dimension of the applicators makes it difficult to exclude the risk of loss such as that reported last week from the Hull Royal Infirmary. Radium therapy has proved itself of unquestionable value in the treatment of certain tumours; we may instance cancer of the cervix amongst one class and cavernous angiomata in the other. Radium therapy is extremely useful also in the treatment of menorrhagia, as was pointed out in a recent report issued by Dr. R. T. Lewis from University College Hospital. But, on the other hand, to many forms of malignant disease radium hitherto has not brought noteworthy relief. It may be that some types of tumour are naturally more sensitive to the lethal rays than are others, but a consideration of the records supplied by different hospitals, and incorporated in the M.R.C. Report, prompts the thought that we have not yet learnt the most effective way of using this potentially beneficial remedy in certain types of tumour. The difficulties which beset such experimental work as this are great, and time and ripe experience alone can answer many of the questions raised. There is, for example, the established fact that the cancer cell can be definitely killed by radium emanations, though unfortunately this lethal effect is only potent in the immediate neighbourhood of the radium tube. There is also the encouraging discovery that certain types of cancerous growth can be arrested and unpleasant symptoms relieved by irradiation. Perhaps we are only at the beginning of our catalogue of the value of radium to medicine. At any rate, there is sufficient ground for the encouragement of such a systematic research into the uses of radium in the treatment of disease as is being undertaken by the Medical Research Council.

QUEEN CHARLOTTE'S HOSPITAL REPORTS.

AN amended Royal Charter has recently been obtained changing the name of this institution to Queen Charlotte's Maternity Hospital, and this title now appears upon the pages of the 1922 clinical report which has just come into our hands. In this connexion it is worth recording that Dr. G. C. Peachey, in a recent paper read before the Royal Society of Medicine, claimed that he had established the interesting fact that this was the oldest lying-in hospital in the British Isles, dating back to 1739. On account of the war the rather belated 1918 report has only lately been published, and shows that during that year 1649 women were admitted to the 87 beds of the hospital, 69 of which were apportioned to the lying-in ward; whereas in 1922 1820 women were admitted, the beds being reduced to 83, of which 65 were distributed amongst the lying-in wards. In 1918 87 practitioners and students attended the practice of the hospital and 103 pupil midwives trained at the institution passed the examination of the Central Midwives Board; the figures for 1922 were 155 and 144 respectively. The following table gives a comparison of the principal statistics for these two years:—

Year.	Patients delivered.	Patients dis-charged undelivered or admitted for antenatal treatment.	Average length of stay in hospital.	Maternal mortality.	Maternal morbidity (Queen Charlotte's standard).	Rate of		Forceps rate.	Cæsarean section.		
						Still-birth.	Infant mortality.		No. of cases.	Maternal mortality.	Fœtal mortality.
			Days.	%	%	%	%	%		%	%
1918	1653	3	13	0·66	20	4·7	3·4	11·1	37	5·5	16·5
1922	1779	31	12	0·61	11·6	6·4	2·6	7·8	58	3·4	10·3

These clinical reports, as heretofore, give an excellent statistical enumeration of the cases; a number of elaborate tables are included, many of which contain a wealth of detail which only the most exacting could wish for. Particulars of the deaths are set out, with, in some instances, the post-mortem findings; also details of "special cases" are given and we are pleased to see that "cardiac cases" are here shown. An interesting table included in the 1918 report gives a comparison of the figures of the maternal morbidity-rate in the practice of the hospital for the previous eight years, and shows that during that period it was lowest in 1912 and highest in 1917, the figures being 13·4 per cent. and 22 per cent. respectively. The rate in 1918 was 20 per cent., whereas in 1922 there was a drop to 11·6 per cent. An analysis of the cases of pyrexia reveals no satisfactory explanation of this, and influenza cannot be assigned as the cause of the high rate in 1918, as this disease only accounted for just over 1 per cent. of cases. It should be added that the Queen Charlotte standard is extremely high, stricter, in fact, than any in use elsewhere. In comparison with other hospitals the morbidity-rate appears high, but until a uniform standard is adopted throughout the country comparative figures are of no value.

THE TSETSE-FLY.

THE tsetse-flies are of such great economic and ecological importance to Africa that the appearance of a monograph[1] of authority and scope devoted to their study is an event in the annals of tropical medicine. Prof. R. Newstead, F.R.S., and his collaborators have based their description of these insects upon the fine collection assembled at the Liverpool School of Tropical Medicine. Nearly a century has passed since the first two species of tsetse-fly, *Glossina longipalpis* and *G. palpalis*, were described, but now some twenty are recognised and described in this memoir, with one sub-species and five varieties. The genus *Glossina* is confined to Africa, with one exception—*G. tachinoides*, which is found in the Arabian hinterland, separated by over a thousand miles from its most easterly range in the French Sudan. In the descriptive narrative of each species great attention is paid to the morphology of the genital armature in the male; Prof. Newstead regards this as the most important feature on which to base specific distinctions. The bionomics of each species are exhaustively dealt with, and the distribution outlined by means of maps. The work is illustrated by 28 plates, partly after paintings and outline drawings by the author; it is regrettable that the finer shades in coloration which distinguish the various species do not lend themselves readily to reproduction. The coloured photographic records of *G. morsitans* are specially commendable. The student will be grateful for the remarkably complete bibliography of this interesting group of insects. In this monograph the breeding places of various species are illustrated by numerous photographs, thus affording the material for a reasoned attack on the flies at their source. Dr. F. W. Alexander in a leaflet recently issued by the Poplar Public Health Department describes a simple night-trap which may help in the destruction of the tsetse as well as other winged pests. A well-protected night-light or electric light attracts the flies, which then are caught on vertical sheets of ground-glass smeared with some sticky substance. The contrivance, which is easily fixed upon a pole and stood where the pests exist, is certainly worth a trial.

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[1] A Guide to the Study of the Tsetse-Flies. By Prof. R. Newstead, F.R.S., Entomologist, Liverpool School of Tropical Medicine; with the collaboration of Alwen M. Evans, M.Sc. Manch., and W. H. Potts, B.A. Camb.: and a Foreword by Prof. J. W. W. Stephens, M.D. Camb., F.R.S. London: Hodder and Stoughton, Ltd.; Liverpool: University Press of Liverpool, Ltd. 1924. Pp. 268. 20s.

As we go to press we learn with regret of the untimely death of Dr. B. R. G. Russell, of the Imperial Cancer Research Fund.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. H. S. Anderson retires on ret. pay.

Maj. M. D. Ahern is seconded for service under the Colonial Office.

ROYAL AIR FORCE.

B. W. Cross is granted a short service commission as a Flying Officer.

DEATHS IN THE SERVICES.

Deputy Surgeon-General Clarence Cooper, who was in the service of the Hon. East India Company in pre-Mutiny days, died at South Norwood Park on Dec. 18th at the age of 94. Born at Brentford on June 28th, 1830, he was the son of George Cooper, F.R.C.S., and after attending schools in England and Germany he entered at King's College, and afterwards studied medicine at Guy's Hospital. Qualifying with the M.R.C.S. Eng. and the L.S.A. in 1852 he almost immediately joined the H.E.I.C.S. as assistant surgeon, and became surgeon major in 1865, and Lieut.-Colonel in 1873, and retired as Deputy Surgeon-General in 1881. An M.D. of St. Andrews and a member of the Royal College of Physicians of London, he served in every branch of the services, and held many civil appointments. In 1855 he was in medical charge of troops in the colony of Labuan, and his services were placed by the Government of India at the disposal of the Colonial Office. He then acted as colonial surgeon, coroner, police magistrate, superintendent of convicts, Colonial Secretary, Judge of High Court, and as a Member of the Legislative Council. After his retirement he joined the Court of Assistants of the Society of Apothecaries of London and became Master of the Society in 1903.

RONTGEN SOCIETY.—A general meeting of this society will be held on Jan. 6th, at 8.15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London, W., when a paper will be read by Dr. N. S. Finzi on Some Developments in Deep Radiotherapy. Members are invited to attend the annual exhibition of scientific apparatus of the Physical Society of London and the Optical Society, which will be held at the Imperial College of Science, Imperial Institute-road, South Kensington, on Jan. 7th and 8th, 1925. Tickets of admission may be obtained on application to the secretaries of the Rontgen Society.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The eleventh meeting of the Royal Commission on National Health Insurance was held at the Home Office on Dec. 18th and 19th, Sir Andrew Duncan in the chair on the 18th and Lord Lawrence of Kingsgate on the 19th. The examination of the representatives of the National Conference of Industrial Assurance Approved Societies, Sir Thomas Neill, Mr. E. F. Spurgeon, and Mr. E. T. Palmer, was continued, the following subjects being dealt with: The methods of government of the industrial societies, the position of deposit contributors, excusal of arrears of contributions due to unemployment, the benefits of women who being insured persons marry, extension of the scope of medical benefit, and provision of dental treatment. Thereafter Mr. Edwin Heather, representing the Independent Order of Oddfellows, Manchester Unity, was examined on the following subjects: The organisation and management of the society, the administration allowance, valuations, and additional benefits.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CII.—TREATMENT OF FREQUENCY OF MICTURITION IN WOMEN.

FREQUENCY of micturition is a common complaint amongst women and may cause considerable distress. In itself it is only a symptom, and thus in a small class of cases only is treatment definitely directed towards it. In the majority of cases its treatment must be that of the lesion to which it is due. I do not propose here to deal with the many acute illnesses in which frequency plays a part, but rather with those in which frequency may, in certain instances, be the only or the predominating symptom.

The causes may be classified in five groups: (1) Organic disease of the bladder; (2) irritation of an otherwise healthy bladder, either by some abnormality in the urine or by some external cause; (3) incompatibility of size between bladder and contents—i.e., a bladder so small that it is unable to deal with the normal output from the kidneys, or a condition of polyuria; (4) organic disease of the central nervous system; and (5) functional nervous conditions.

Organic Disease of the Bladder.

Cases of frequency arising from diseases of the bladder may be divided for our purpose into two groups—those which require purely surgical treatment, and those which require medical treatment.

(*a*) *Conditions Needing Surgical Treatment.—Foreign bodies*, if of small size, may be removed through the urethra after this has been dilated; it must be remembered, however, that the female urethra, although very dilatable, has its limits, and consequently care is necessary. Cases have occurred in which free stretching, prior to the extraction of a foreign body, has resulted in permanent incontinence. It is better to do a suprapubic cystotomy than to risk this.

Malignant Growths.—Where there is any hope of being able to effect a complete removal, the bladder must be opened and the growth removed together with that part of the bladder wall from which it is growing, the viscus being re-formed from what is left. Should the growth be in itself inoperable, the patient's sufferings may be alleviated for a time by opening the bladder above the pubes and burning the growth down to its base with diathermy. The suprapubic fistula may remain, but it sometimes heals up, although a permanent cure is not effected; the distressing symptoms, however, are relieved temporarily. The usual method of dealing with *innocent growths*, unless these are very extensive, is to treat them by diathermy applied through an operating cystoscope. A papilloma, if very small, may be destroyed at one sitting; if larger, repeated treatments are required at intervals of two to three weeks. If a long sitting is expected, with much irrigation, a general anæsthetic may be given, or else sedatives, such as scopolamine and morphine, may be administered beforehand. In both cases the patient is able to return home 48 hours later, and a long convalescence is avoided.

Persistent calls to micturition in young women, particularly when these occur by night as well as by day, often indicate *tuberculosis of the bladder*, secondary to the same disease in one of the kidneys. Such cases demand patient and persistent investigation. When this diagnosis has been established the affected kidney should be removed, unless some definite contra-indication exists.

Diverticula are rare in women. When they occur they lead to frequent calls to empty the bladder, and, in this case, should be resected.

(*b*) *Conditions Requiring Medical Treatment.*—Infection of the bladder with *B. coli* is common among women of all ages, and is highly resistant to treatment when once it has reached the chronic stage. Other organisms are also sometimes responsible. The bacillus may appear primarily in the bladder, or may make its way there via the kidney, and care must be taken to exclude an underlying lesion before proceeding to treatment. Where the infection appears to be confined to the bladder, the patient should avoid chills and over-fatigue, and restrict herself to a non-irritating diet; spiced foods, alcohol, and coffee must be prohibited. Constipation must be treated. It is advisable to give an intestinal antiseptic, such as salol and beta-naphthol aa gr. v., three times a day. The urine should be rendered non-irritating but copious, fluids being taken freely. If the reaction is acid a mixture of pot. cit. gr. xv., sod. bicarb. gr. x., tinct. hyoscyami ♏ xx., inf. buchu ad oz. 1, will be found soothing; it may be necessary to increase the dose of alkalies. On the other hand, an alkaline reaction may usefully be acidified with benzoic acid gr. x. three times daily. Cases untouched by either of these methods may respond to one of the essential oils, such as ol. santali ♏ x., thrice daily. Urinary antiseptics—hexamine gr. xxx. to xlv. in the course of the day, or helmitol, should be exhibited. Local treatment of the bladder, if it can be tolerated, is often helpful. Daily lavage with a tepid solution of pot. perman. 1 in 5000, protargol 1 in 500, or oxycyanide of mercury 1 in 4000 may be followed by leaving in the bladder a few c.cm. of a 10 per cent. solution of gomenol in olive oil. If the infection is a descending one from the kidneys treatment on the above lines should be maintained for some time. Where this is not efficacious, good results may sometimes be obtained by irrigation of the renal pelvis with a 5 or 10 per cent. solution of collargol. Vaccine therapy may be tried, but the results are very variable. A troublesome variety of chronic cystitis is what might be called the *residual tuberculous bladder*—the irritable and often ulcerated bladder which remains after the removal of a tuberculous kidney. General hygienic principles must be adopted, and a diet and treatment prescribed as in chronic simple cystitis, the diet consisting mainly of eggs and milk, fruit, and fresh vegetables. A soothing mixture containing tinct. bellad. ♏ v., tinct. hyoscyami ♏ xx., inf. buchu ad oz. 1, may be tried. Even inf. buchu by itself, though generally prescribed for its diuretic properties only, has a markedly sedative effect on some bladders. Methylene-blue, gr. 1 in a pill three times a day, is sometimes efficacious, and daily instillations of gomenol without lavage give good results if they can be tolerated. If ulcers still persist after prolonged treatment, fulguration sometimes causes them to heal.

Irritation of the Bladder.

(*a*) *External Irritation.*—Among the causes of frequency of micturition under review, external irritation of the bladder is perhaps the one that applies most particularly to women. The lesion may be either pelvic or perineal. In the case of the pelvis, uterine tumours and ovarian cysts cause trouble by preventing the bladder from filling to its normal capacity; the resultant discomfort is one of the indications for surgical intervention. Frequency in the early months of pregnancy calls for examination, as it may indicate a retroverted uterus needing replacement. Chronic inflammatory conditions in the uterine adnexa may cause frequency, although this is by no means an invariable result, but *chronic cervicitis* is a very potent cause of bladder irritability, the viscus being either healthy itself or the seat of a trigonitis with hypertrophic tags and fringes around the internal urethral meatus. These cases will not show any improvement until the cervical condition has been dealt with. The cervix should be treated by appropriate local measures; if a healthy state cannot be established by these means it should be amputated. *Urethral conditions* are very often responsible. The commonest are: a caruncle at the external meatus, best treated by cauterisation; urethrocele, in which satisfactory results are obtained by a buttress operation; and urethral prolapse, which should be excised when giving trouble.

(*b*) *Internal Irritation.*—Irritation of the bladder by some abnormality in its contents, apart from disease of its wall, may be due to a *bacilluria*—usually, but not invariably, of invasion by *B. coli*. This is especially common in women. The treatment is broadly the same as that of the chronic cystitis mentioned above. In some patients the only discoverable peculiarity is a highly acid reaction; these can at once be relieved by the exhibition of large doses of alkalies. Finally, there may be a heavy excretion of oxalates or phosphates. To treat the former, all articles of diet rich in calcium and oxalic acid should be prohibited, and meat, fruit, potatoes, and bread recommended. Doses of dilute mineral acids should be given, and the urine kept acid by the administration of acid sodium phosphate in fairly large doses to dissolve the oxalate of lime. Heavy excretion of phosphates is frequently a manifestation of disordered digestion; this must be inquired into and treated. Rest should be enjoined, and the general condition built up. Care must be taken to keep the urine acid.

Incompatibility of Size between Bladder and its Contents.

For the *sclerosed contracted bladder* very little can be done. If all lesions are healed, and we are only dealing with the sequelæ of old inflammation, attempts may be made to improve matters by graduated distension of the bladder, increasing amounts being injected at successive sittings. But marked success is not likely to be met with. *Polyuria* is itself a symptom, and most of the causes of this complaint—diabetes mellitus and insipidus, Bright's disease, &c.—require an elaborate scheme of treatment which is outside the scope of this paper.

Nervous Affections: Functional and Organic.

Frequency due to disease of the central nervous system also comes into this category. It is often very difficult to combat frequency due to *hysterical and nervous polyuria*. Patients so suffering must be reassured, told that no serious lesion is present, and their confidence gained. A sedative mixture, such as pot. brom. gr. x., tinct. val. ammon. ♏ xv., tinct. hyoscy. ♏ xv., aq. chlorof. ad oz. ½, may be given, and general tonic treatment instituted. In this case also good results may be obtained by graduated fluid distension of the bladder, the patient being persuaded to retain the injection as long as she can hold it. Rest, prescribed in regular hours, also helps to calm the patient.

Conclusion.

Finally, it must once more be emphasised that frequency of micturition is only a symptom. On no account should it be treated for itself alone. Such treatment is only permissible after the fullest investigations have been made, and the possibility of important lesions—such, for instance, as early renal tuberculosis—excluded.

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Chair of Anatomy in Liverpool.—Dr. William Henry Wood has been appointed to the Derby Chair of Anatomy in the University of Liverpool as from Jan. 1st, 1925. Dr. Wood studied at the University of Manchester, where he took the degree of B.Sc. in zoology and physiology in 1908, M.B. and Ch.B. in 1913, and M.D. in 1923, being awarded a gold medal for his dissertation on the functional significance of the muscular arrangements of the hand. Dr. Wood acted as senior demonstrator in physiology under Prof. W. Stirling, and at the time of appointment was lecturer in anatomy in Manchester under Prof. J. S. B. Stopford. Dr. Wood obtained the rank of captain in the R.A.M.C. during the war.

Special Articles.

MEDICAL USES OF RADIUM.

THE Medical Research Council's Special Report No. 90[1] is a summary of reports received from centres at which during 1923 special investigations have been carried out into the medical use of radium, more particularly in the treatment of malignant disease. The large stock of radium bromide which had been collected for military purposes during the war was entrusted by the Government to the Medical Research Council, who, in the first instance, lent the whole quantity to workers at the Middlesex Hospital for an initial series of experiments. Subsequently the Council distributed the radium among a number of research centres, thereby inaugurating a coördinated inquiry into the medical uses of radium. The present report is the first published statement of the progress and results of this scheme of inquiry, and is based upon the work done in 1923 by the following institutions which received loans of radium from the Medical Research Council: Middlesex Hospital, University College Hospital, St. Bartholomew's Hospital, King's College Hospital, London Hospital, Birmingham General Hospital, Cardiff Royal Infirmary, Aberdeen Royal Infirmary, the Irish Public Health Council, the London Radium Institute, and the Cavendish Laboratory at Cambridge.

The report is divided into three sections, dealing respectively with clinical investigations of malignant disease, clinical investigations of non-malignant conditions, and experimental investigations.

Malignant Disease.

The different varieties of malignant disease to which special consideration was given were cancer of the breast, cancer of the uterus, cancer of the mouth, nasopharynx, larynx and œsophagus, rodent ulcer, and sarcoma and lymphosarcoma. No very definite conclusions can be drawn from the results submitted dealing with radium therapy in cancer of the breast, for it is evident from the different practice of different institutions that no final agreement has yet been reached as to the dosage of radium or how best to employ it. In cancer of the cervix uteri, however, the value and limitations of radium therapy can be more accurately assessed. Thus, the report submitted by University College Hospital concluded by observing that all suitable cases were temporarily improved and symptoms alleviated. "Some cases," it adds, "are benefited to such an extent that they may almost be claimed as clinical cures, having done well for over two years, and, in these, general health is satisfactory and local appearances show no evidence of the old lesion. It is impossible, however, to determine the pathological processes at work in the deep tissues of the pelvis; clinical examination only affords evidence of doubtful value. The intense local fibrosis effectively masks minor evidence of malignant invasion, and progress has to be assessed on the general constitutional state in such cases. Time alone will show to what extent disease has been eradicated and prevented in its spread."

The report received from St. Bartholomew's Hospital draws attention to the fact that the majority of patients suffering from carcinoma of the cervix cease to suffer from hæmorrhage, vaginal discharge, and ulceration after treatment with radium. In many cases life is prolonged, though it would be premature at present to speak of certain cures. Moreover, the preliminary application of radium to operable cases causes the disappearance of fungating growths and ulcers, and minimises the risk of implanting new growths at the time of incising the vaginal wall. The experience gained at St. Bartholomew's Hospital has led to a change of technique, and the research workers intend in the future to treat four different series of patients in different ways in order to obtain information as to the best means of using the radium. There follows an interesting section of the report dealing with tissue changes, both naked-eye and microscopical, after irradiation. In brief, it seems to be confirmed that the main effect of the radium is directly lethal on the cancer cells in the immediate vicinity of the tube, and only to a slight extent stimulatory to the surrounding fibrous tissue.

Dosage.—From the evidence which has been collected the Radiological Committee of the Medical Research Council feel justified in advising the larger dosage employed by some hospitals rather than the smaller dosage of others. The details of the larger dosage method are as follows: 100 mg. inserted in the cervical canal, 50–100 mg. packed round the cervix and left for 30 hours. Two further treatments of 24–30 hours, at intervals of six to eight weeks; or alternatively: 200 mg. in the cervical canal and 130 mg. inserted in the tissues of the cervix and left for 24 hours, the treatment being repeated if necessary.

In cancer of the mouth, nasopharynx, larynx and œsophagus it cannot be said that the prognosis after radium treatment is good. Such growths are notoriously difficult to reach, and the frequent presence of sepsis further complicates the treatment. Still, it is obvious that much remains to be learnt as to the best methods of using radium in these cases; one interesting case, reported fully on pages 18–20 of the report, shows that some patients may be benefited by radium treatment.

A large number of cases of rodent ulcer have been successfully treated by radium, a statement borne out by the Birmingham Hospital experience, which records 62 cases treated. Of these 33 were clinically cured, 19 are still under treatment and improving, 2 have discontinued their treatment, and 4 have been transferred to the X ray department.

The evidence that much benefit has followed the irradiation of sarcoma and lymphosarcoma is not very convincing, and the clinical results show considerable variation. This is hardly surprising, since the growths vary to such a wide extent in character, extent, and histological type. Forty cases were treated during the year, the majority by the surgical introduction of radium into the growth. Among the 33 cases of sarcoma a favourable result was obtained in 18; in the lymphosarcoma cases 5 out of 7 benefited. Histological evidence of the nature of the growth is provided in only a small percentage of the cases under review. The centres have recently been invited to coöperate in a scheme whereby independent pathological examination of sarcoma cases treated by radium is to be made by Prof. E. H. Kettle. The aim of this investigation is to try to correlate the clinical results of radium treatment with the histological character of the growths.

Non-Malignant Conditions.

Twenty-three cases of uterine fibromata were treated by radium at University College Hospital, some with success, others without. Large doses were necessary and sometimes had to be repeated. Dr. R. T. Lewis considers that both ovaries and endometrium undergo considerable changes after radiation, and that a combination of destruction of Graafian follicles, together with atrophy of the endometrium, is the underlying factor in the production of the complete cessation of the periods which may follow radium treatment.

Irradiation has also been employed successfully in the treatment of menorrhagia at the menopause and in the so-called essential menorrhagia of young women who present no sign of pelvic disease. The reports from all the centres speak well of the value of this form of treatment, and there appears to be a considerable degree of uniformity in the dose of radium employed, suggesting that radium therapy in menorrhagia is being set on an established basis.

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[1] Medical Uses of Radium: Summary of Reports from Research Centres for 1923. London: H.M. Stationery Office. 1924. Pp. 34. 1s.

Radium has received a comprehensive trial in the treatment of angiomata, keloids, and papillomata. For the first of these the report from King's College Hospital observes: "Generally our experience warrants us in expressing the opinion that radium is the treatment 'par excellence' for cavernous angiomata." On the other hand, "port-wine marks" do not respond to radium treatment, while capillary angiomata are perhaps better handled with carbon-dioxide snow. The value of radium treatment for cosmetic purposes is well illustrated in the case reported of an otherwise good-looking baby, whose features were marred by a large, pendulous, cavernous angioma at the end of its nose, giving it an appearance resembling that of "Punch." After treatment with radium practically no disfigurement remained.

Experimental Investigations.

Dr. J. C. Mottram's researches at the Radium Institute on the changes produced on the alimentary tract by radiation are worthy of note. He found that large doses of radium or X rays quickly produced desquamation and necrosis of the intestinal mucosa; the irradiation arrested the secretion of mucus and allowed the bacteria of the colon and cæcum to invade the mucosa. He believes, also, that radiation results in a profound thrombopenia as well as a bacterial invasion of the intestinal mucosa; he considers that the bacterial invasion of the tissues is due to direct action on the intestinal mucosa and not to lowered bacterial resistance following the thrombopenia.

The important investigations of Dr. E. C. Dodds and Dr. J. H. D. Webster into the biochemical changes in patients undergoing radium and X ray treatment were published in The Lancet, 1924, i., 533.

Prof. S. Russ's experiments on the lethal doses of radiation for animal tumours show clearly that the lethal action of radium extends only for a very short distance even when the exposure has been continued for several days.

Conclusion.

The main objective of the schemes of investigation which are being carried out at these different research centres is primarily to define the proper limitations of the uses of radium in the treatment of malignant disease and the best modes of treatment for any given type of disease. Towards this objective notable progress has already been made. Thus in the treatment of cancer of the uterus radium is a remedy of unquestionable value, and experience has pointed the way to assuring the most thorough irradiation and optimum dosage. It appears not only that certain types of tumours are more sensitive to radiation than are others, but that tumours even of the same histological type are not all equally sensitive, and, moreover, the sensitiveness of a given tumour may be affected to an unknown degree by the general or local reactions of the tissues of the host. The question of dosage is, of course, all-important, and the expression of dosage in terms easily understood hardly less so. It is suggested that for some growths it may be useful to express dosage in terms of milligrammes per cubic centimetre of tissue per day. By means of such collective research we may learn what is the optimum dosage of irradiation to give to a particular tumour. At present it is not clear whether in any individual tumour it is better to use a large quantity of radium for a short time or a small quantity for a long time. These and cognate problems are engaging the attention of the various research centres, and the results are being correlated by the Radiology Committee of the Medical Research Council. The personnel of the committee includes Sir Cuthbert S. Wallace (chairman), Dr. Arthur Burrows, Mr. Malcolm Donaldson, Mr. C. Thurstan Holland, Prof. E. H. Kettle, Dr. Robert Knox, and Sir Humphry Rolleston. Its secretary is Prof. Sidney Russ, to whom the committee express indebtedness for the indefatigable labour which he has given to the preparation of this report.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

GRANTS TO HOSPITALS AND CONVALESCENT HOMES.

A meeting of the General Council of King Edward's Hospital Fund for London was held under the Presidency of the Prince of Wales on Dec. 16th, for the purpose of awarding grants to hospitals and convalescent homes.

The Finances of the Fund.

Lord Revelstoke (hon. treasurer) said there would be two amounts to allocate, the ordinary distribution, as recommended by the Distribution Committee, of £235,000, and the further special distribution of £81,000, in aid of hospital extensions and improvements. There was, he said, a serious decrease in the general fund legacies, which were always liable to fluctuations, but, on the other hand, anonymous donations of £7000 and £5000, and a contribution of £15,000 from the British Charities Association, had been received, while other subscriptions and donations had been well maintained.

Sir William Collins, in making the annual statement on behalf of the League of Mercy, said that, although they found increasing difficulty in competing with schemes which offered benefits to their contributors, which the League of Mercy by its constitution could not do, nevertheless, they would by the end of the year be able to hand over the not inconsiderable sum of £14,500, which made the total to the King's Fund, up to the present time, £368,034. The League of Mercy, like the King's Fund, had benefited by the generosity of the British Charities Association, who had entrusted the League with the distribution of £5000 to the extra-metropolitan hospitals. The League had been able to distribute to the provincial hospitals £9760, making a total to the extra-metropolitan hospitals of £64,769. The grand total during the last 25 years was thus £432,802.

Sir Cooper Perry (chairman of the Distribution Committee) presented the report of the Committee on the

Distribution to Hospitals

(including recovery and convalescent branches), which stated that the amount placed at the disposal of the Distribution Committee for allocation amongst hospitals and their recovery and convalescent branches at the present distribution was £233,000, being the same amount as last year. The number of hospitals applying for grants was 118, as against 116 in 1923, applications having been received from the Babies' Hospital (Deptford Fund) and the Brentford Cottage Hospital. The steady improvement in the financial position of the hospitals continued during 1923, when, for the first time since the war, the aggregate income from normal sources showed a surplus over the aggregate expenditure. The surplus was due to exceptional legacies at three hospitals, but, even if these legacies were omitted, the net aggregate deficit for the year was reduced from £175,000 to £20,000. In these circumstances, general attention had been directed during 1924 to the question how far the voluntary hospitals were capable not only of balancing their income and expenditure, but also of extending their work to meet the growing need for hospital treatment.

*List of Awards.**

Major Harold Wernher (hon. secretary) presented the schedule containing the list of awards to hospitals (including recovery and convalescent branches) as follows.

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* The Distribution Committee desire to draw attention to the fact that it must not be assumed that the reduction or absence of a grant implies dissatisfaction.

	£
Acton Hospital (of which £500 to deficit on extension, in accordance with the scheme submitted to the Fund)	850
All Saints' Hospital	50
Babies' Hospital (Deptford Fund)	25
Baby Clinic Hospital (Kensington)	50
Beckenham Cottage Hospital (of which £1000 to extension, in accordance with the scheme submitted to the Fund)	1,300
Belgrave Hospital for Children (of which £1000 towards the provision of new nurses' accommodation, in accordance with the scheme submitted to the Fund)	2,350
Blackheath and Charlton Hospital (of which £50 towards provision of ward verandahs)	200
Bolingbroke Hospital (of which £1000 to erection of new ward block, in accordance with the scheme submitted to the Fund)	2,250
Brentford Cottage Hospital (to rebuilding and extension on new site, in accordance with scheme to be approved by the Fund)	500
British Hospital for Mothers and Babies, Woolwich	500
Central London Ophthalmic Hospital	700
Central London Throat and Ear Hospital (of which £750 to erection of new out-patient department and permanent wards, in accordance with the scheme submitted to the Fund)	850
Charing Cross Hospital	4,000
Chelsea Hospital for Women (including Convalescent Home at St. Leonards) (of which £500 to new nurses' home, in accordance with the scheme submitted to the Fund)	1,225
Cheyne Hospital for Children (of which £250 towards provision of open-air wards)	450
City of London Hospital for Diseases of the Heart and Lungs (Victoria Park) (including Convalescent Home at Saunderton)	3,575
City of London Maternity Hospital	1,100
Clapham Maternity Hospital	300
Dreadnought Hospital (Seamen's) (including Sanatorium at Liphook, and Convalescent Home at Cudham)	3,000
East End Mothers Lying-in Home	500
East Ham Hospital	100
East London Hospital for Children (including Convalescent Home at Bognor) (of which £500 to reduce debt, and £100 to extension of X ray and pathological departments)	3,800
Elizabeth Garrett Anderson Hospital (including Recovery Branch at Barnet) (of which £1000 to extension, in accordance with scheme to be approved by the Fund)	2,500
Eltham and Mottingham Cottage Hospital	25
Evelina Hospital	850
Finchley Memorial Hospital (of which £100 to deficit on acquisition of adjoining site)	375
Florence Nightingale Hospital for Gentlewomen	250
French Hospital	300
General Lying-in Hospital	600
German Hospital	300
Grosvenor Hospital for Women (of which £500 towards provision of accommodation for resident medical officer and for nurses, in accordance with scheme to be approved by the Fund)	1,000
Guy's Hospital (of which £1500 to improvements)	11,500
Hampstead General and North-West London Hospital (of which £150 to recent improvements)	2,650
Hendon Cottage Hospital (of which £250 to extension of ward block, in accordance with the scheme submitted to the Fund)	550
Hornsey Cottage Hospital (of which £500 to extension, in accordance with the scheme submitted to the Fund)	650
Hospital for Consumption, Brompton (including Sanatorium at Frimley)	1,000
Hospital for Diseases of the Throat (of which £1000 to reconstruction, in accordance with the scheme submitted to the Fund)	1,100
Hospital for Epilepsy and Paralysis (of which £1000 to deficit on extension of out-patient department, in accordance with the scheme submitted to the Fund)	2,750
Hospital for Sick Children (of which £1000 to reduce debt, and £100 to deficit on the provision of fire-escape)	6,100
Hospital for Women (Soho-square)	1,000
Hospital of St. John and St. Elizabeth	750
Infants Hospital (of which £300 to recent improvements)	600
Invalid and Crippled Children's Society Hospital (Canning Town)	450
Italian Hospital	300
Jewish Maternity Home	25
Kensington Dispensary and Children's Hospital (of which £500 to removal and extension, in accordance with scheme to be approved by the Fund)	525
Kensington, Fulham, and Chelsea General Hospital (of which £1000 to rebuilding and extension, in accordance with the scheme submitted to the Fund)	1,050
King Edward Memorial Hospital (Ealing)	500
King's College Hospital	7,500
London Fever Hospital	350
London Homœopathic Hospital	1,750
London Hospital (including Recovery Branch at Reigate)	13,250
London Lock Hospital (of which £600 to maintenance of Harrow-road Hospital, and £100 to maintenance of Dean-street Hospital)	700
London Temperance Hospital (of which £1000 to new nurses' home, in accordance with the scheme submitted to the Fund)	2,500
Maternity Charity and District Nurses' Home (Plaistow) (to the hospital: of which £500 to deficit on rebuilding and extension, in accordance with the scheme submitted to the Fund)	800
Medical Mission of the Good Shepherd, Babies' Home (Hoxton) (to maintenance of babies' ward)	25
Metropolitan Ear, Nose and Throat Hospital	25
Metropolitan Hospital (of which £3000 to new nurses' home, in accordance with the scheme submitted to the Fund)	6,500
Middlesex Hospital (including Convalescent Home at Clacton)	6,400
Middlesex Hospital Cancer Charity	900
Mildmay Memorial Hospital (of which £100 to new operating theatre, in accordance with the scheme submitted to the Fund)	500
Mildmay Mission Hospital (of which £500 to nurses' home, in accordance with the scheme submitted to the Fund)	1,500
Miller General Hospital for South-East London (including Convalescent Home at Bexhill) (of which £2000 to extension, in accordance with the scheme submitted to the Fund)	5,600
Mothers' Hospital of the Salvation Army (of which £500 to extension, in accordance with the scheme submitted to the Fund)	850
Mount Vernon Hospital (Fitzroy-square and Northwood)	1,100
National Hospital for Diseases of the Heart (of which £500 to extension of out-patient department, in accordance with the scheme submitted to the Fund)	800
National Hospital for the Paralysed and Epileptic (including Convalescent Home at Finchley)	4,000
Nelson Hospital (South Wimbledon) (of which £500 to deficit on extension, in accordance with the scheme submitted to the Fund)	1,000
Northcourt Hospital and Home for Sick Children (Hampstead) (in consideration of the fact that curable cases are admitted)	50
North Islington Infant Welfare Wards	50
Norwood and District Cottage Hospital	450
Paddington Green Children's Hospital (including Convalescent Home at Slough)	850
Passmore Edwards Hospital for Wood Green, &c.	50
Poplar Hospital for Accidents (including Convalescent Home at Walton-on-the-Naze) (of which £500 to new nurses' home, in accordance with the scheme submitted to the Fund)	650
Prince of Wales's General Hospital (including Convalescent Home at Nazeing) (of which £500 to deficit on extension, in accordance with the scheme submitted to the Fund)	4,600
Queen Charlotte's Maternity Hospital (of which £500 to reduce debt)	1,800
Queen Mary's Hospital for the East End (including Convalescent Home at Theydon Bois) (of which £1000 to deficit on new maternity home, in accordance with the scheme submitted to the Fund)	4,450
Queen's Hospital for Children (including Convalescent Home at Bexhill) (of which £250 to reduce debt, and £250 to additional nurses' accommodation, in accordance with the scheme submitted to the Fund)	4,500
Royal Dental Hospital of London	250
Royal Eye Hospital	750
Royal Free Hospital (of which £1000 to new nurses' home, in accordance with the scheme submitted to the Fund)	6,000
Royal Hospital (Richmond) (of which £250 to extension, in accordance with the scheme submitted to the Fund)	900
Royal London Ophthalmic Hospital	3,000
Royal National Orthopædic Hospital (including Country Branch at Stanmore)	4,000
Royal Northern Hospital (including Royal Chest Branch in City-road, Recovery Branch at Southgate, and Convalescent Home at Clacton) (of which £1000 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund, and £100 to X ray improvements, in accordance with scheme to be approved)	8,300
Royal Waterloo Hospital for Children and Women (including Convalescent Home at Whippingham) (of which £1000 to extension, in accordance with the scheme submitted to the Fund)	3,350
Royal Westminster Ophthalmic Hospital	650
St. Andrew's Hospital (Dollis Hill) (of which £100 towards provision of lift)	300
St. Bartholomew's Hospital (of which £1000 to new nurses' accommodation)	8,000
St. Columba's Hospital	400
St. George's Hospital (including Recovery and Convalescent Branch at Wimbledon)	7,000
St. John's Hospital (Lewisham) (of which £500 to new nurses' home, in accordance with the scheme submitted to the Fund)	1,200
St. John's Hospital for Diseases of the Skin	300
St. Luke's Hospital for Advanced Cases (of which £250 to deficit on acquisition of new premises, and their adaptation in accordance with the scheme submitted to the Fund)	500
St. Mark's Hospital (of which £250 to extension of out-patient department, in accordance with the scheme submitted to the Fund)	550
St. Mary's Hospital (of which £500 to electric lights and extension of X ray department, in accordance with the scheme submitted to the Fund)	5,500
St. Mary's Hospital for Women and Children (Plaistow) (of which £500 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund)	2,000
St. Monica's Home Hospital (of which £50 to extension of ward lavatories)	175

	£
St. Peter's Hospital for Stone (of which £150 to reduce debt)	440
St. Saviour's Hospital for Ladies of Limited Means (Osnaburgh-street)	100
St. Thomas's Hospital (of which £500 to improvements)	10,500
Samaritan Free Hospital for Women (including Convalescent Home at Amersham) (of which £300 to deficit on installation of central heating)	1,625
Santa Claus Home..	50
South-Eastern Hospital for Children (Sydenham) (of which £500 to deficit on new out-patient department, in accordance with the scheme submitted to the Fund)	1,250
South London Hospital for Women	1,250
Stoke Newington Home Hospital for Women (of which £100 to new operating theatre)	150
Streatham Babies' Hospital	25
University College Hospital (of which £1000 to removal, rebuilding and extension of Royal Ear Hospital branch, in accordance with the scheme submitted to the Fund)	8,500
Victoria Hospital for Children (including Convalescent Home at Broadstairs) (of which £75 towards extra accommodation for cases of enlarged tonsils and adenoids)..	2,550
Walthamstow, Wanstead, and Leyton Children's and General Hospital (of which £1000 to extension, in accordance with the scheme submitted to the Fund)	1,600
West End Hospital for Nervous Diseases	1,500
Western Ophthalmic Hospital	300
West London Hospital	5,000
Westminster Hospital	2,700
Willesden General Hospital (of which £1000 to extension, in accordance with the scheme submitted to the Fund)	2,750
Wimbledon Hospital (of which £350 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund)	700
Winifred House Invalid Children's Convalescent Hospital Home	25
Woolwich and Plumstead Cottage Hospital	25
Total	£233,000

The Earl of Iveagh having seconded the motion, it was carried unanimously. Sir Cooper Perry then presented the report of the Committee on the

Distribution to Convalescent Homes

not attached to particular hospitals.

The sum available for distribution in London is the same in amount as that for last year—namely, £2000—while the number of applications eligible for consideration is 42, as against 40 last year.

Lists of Awards.

Major-General Sir Cecil Lowther presented the schedule containing the list of awards to convalescent homes not attached to particular hospitals as follows:—

	£
All Saints' Convalescent Home, Eastbourne	200
All Saints' Convalescent Home, St. Leonards	50
Baldwin Brown Convalescent Home, Herne Bay ..	25
Beau Site Convalescent Home, Hastings	25
Brentwood Convalescent Home for London Children, Brentwood	25
Brooklands Home (Invalid Children's Aid Association), Worthing	75
Bushey and Bushey Heath Children's Convalescent Home, Bushey	25
Children's Convalescent Home, Beaconsfield	25
Children's Cottage Hospital, Cold Ash, Newbury (in consideration of the fact that convalescent cases are admitted)	25
Children's Home Hospital, Barnet (in consideration of the fact that convalescent cases are admitted) ..	25
Clevedon Sanatorium (Invalid Children's Aid Association), Broadstairs	50
Convalescent Home for Children, Hawkenbury, Tunbridge Wells	25
Convalescent Home for Poor Children, St. Leonards ..	75
Convalescent Police Seaside Home, Hove	75
Edgar Lee Home (Invalid Children's Aid Association), Willesden	50
Florence Emma Home (Invalid Children's Aid Association), Dover	25
Hamilton House (Invalid Children's Aid Association), Seaford	50
Highgate Convalescent Home for Children, Highgate..	50
Home for Invalid Children, Brighton	50
London and Ascot Priory Convalescent Home, Bracknell	100
London and Brighton Female Convalescent Home, Brighton	50
London Homœopathic Convalescent Home, Eastbourne	50
Mental After-Care Association Homes, Fairlight ..	150
Metropolitan Convalescent Institution, Bexhill, Broadstairs (Children) and Walton	100
National Sunday School Union Convalescent Home, Bournemouth	25
St. Andrew's Convalescent Home, Folkestone	75
St. Andrew's Convalescent Hospital, Clewer	25
St. John's Home, Kemp Town (Brighton)	50
St. Luke's Home (Children), Woodley (Reading) (in consideration of the fact that convalescent cases are admitted)	25
St. Mary's Convalescent Home, Birchington	25
St. Mary's Home for Children, Broadstairs (in consideration of the fact that convalescent cases are admitted)	50
St. Michael's Convalescent Home, Westgate	50
Seaside Convalescent Hospital, Seaford..	75
Suffolk Convalescent Home, Felixstowe	50
Sunshine Convalescent Home for Children, Felpham, Bognor	25
Surgical Home for Boys, Banstead (in consideration of the fact that convalescent cases are admitted) ..	50
Tilford Convalescent Home for Children, Farnham ..	50
Victoria Home for Invalid Children, Margate (in consideration of the fact that convalescent cases are admitted)	25
Total	£2000

The adoption of these awards having been seconded by Lord Bearsted, the motion was carried unanimously.

Sir Cooper Perry then presented the report of the Committee on the Special Distribution out of the Wells' legacies.

These to date have been allocated as follows:—

Wells' Legacies Distribution: List of Grants to December, 1924.

Chelsea Hospital for Women.—£1500 towards new nurses' home, releasing the wards now occupied by nurses—viz., half the ward space in the hospital; to be the last £1500 required to enable the home, when ready, to be opened free of debt, on the understanding that the balance is raised by the hospital without drawing on general fund cash or investments.

King's College Hospital.—£16,000 to extinguish the bank debt on the removal of the hospital to South London with accommodation for 388 beds as against 224 on the old site; and £15,000, payable in instalments spread over five years, towards the maintenance of 40 beds, increasing the number open for patients from 276 to 316. Of these 40 beds, 14 were opened on Sept. 1st last and 26 on Nov. 8th. The grants are made on the understanding that an appeal will be issued to extinguish debt on maintenance account and to increase the annual income sufficiently to keep the 40 additional beds open permanently, and, if possible, to open more beds; and on the understanding that 16 of the 40 additional beds are reserved for cases of accident or sudden illness occurring in streets or public places and brought to the hospital by ambulance.

London Temperance Hospital.—£3000 towards new nurses' home, releasing 12 beds in the hospital formerly occupied by nurses; to be the last £3000 required to extinguish the debt on the home, on the understanding that the balance is raised by the hospital by Dec. 31st, 1925, without drawing on general fund cash or investments.

Miller Hospital.—£16,000, of which £10,000 towards the extension from 100 beds to 151 beds, and £6000 towards the new nurses' home; to be the last £10,000 and £6000 required to enable the ward block and nurses' home respectively to be opened free of debt, on the understanding that the balance is raised by the hospital without drawing on general fund cash or investment, and that the building of the ward block is begun by June, 1925, and that, when the ward block is opened, 10 beds are reserved for accident cases.

Prince of Wales's Hospital.—£1000 towards new observation wards with eight beds; to be the last £1000 required to enable the observation wards, when ready, to be opened free of debt, on the understanding that the balance is raised by the hospital without drawing on general fund cash or investments, and that these eight beds are reserved for accident cases.

St. Mary's Hospital for Women and Children, Plaistow.—£1500, payable in instalments over five years, towards the maintenance of six hitherto unopened beds, the number available being thus increased from 60 to 66, on the understanding that the hospital keeps the beds open permanently.

Walthamstow, Wanstead, and Leyton Children's and General Hospital.—£2000 towards extension from 50 beds to 90 beds; on the understanding that the work is begun by May, 1925, and that the balance of the cost is raised by the hospital without drawing on general fund cash or investments, and that, when the ward block is opened, at least five beds are reserved for accident cases.

Woolwich and District War Memorial Hospital.—£25,000 towards the amount required for completing the first stage of the new hospital, thus providing 110 beds, of which it is understood that 14 will be reserved for accident cases; the grant being made to enable tenders to be accepted which would otherwise have lapsed on August 5th last.

Sir James Kingston Fowler having seconded, the report was adopted.

Extension of Operations.

Lord Stuart of Wortley (Chairman of the Management Committee) presented a report of the Committee on the suggested extension of the King's Fund area of operations, and moved recommendations to the effect that (1) as, from Jan. 1st, 1925, the area of operations of King Edward's Hospital Fund be extended from the radius of nine miles from Charing Cross to a radius of 11 miles from St. Paul's; and (2) that approved applications for grants towards capital expenditure or maintenance expenditure from within the area brought in by such extension may be met out of the special distributions of the legacies of the late Mr. and Mrs. Wells.

Lord Marshall having seconded, the recommendations were carried unanimously.

The Prince of Wales then read the following message from His Majesty the King: "I am commanded to convey the congratulations of the King to the President and General Council of King Edward's Hospital Fund that they are again able to distribute £235,000, with the aid of this year's very welcome contribution of £15,000 from the British Charities Association, and the very substantial annual amount for which they are indebted to the League of Mercy. The King is glad to hear that before long the hospitals of London will have 2000 beds more than were open before the war; and that the King's Fund is helping to provide another 300 beds, including 53 for accident cases. His Majesty feels that these satisfactory results of the work of the Fund will tend to strengthen public opinion in favour of the voluntary hospital system."

Remarks by the Prince of Wales.

Continuing, His Royal Highness said that the total distribution would be £316,000, the ordinary distribution being £235,000, the same as last year. The difference, £81,000, represented the first list of grants out of the legacies of the late Mr. and Mrs. Wells, which the Council decided in July last to apply to special purposes, particularly extensions and improvements. Legacies were less than last year, and this would have put the Fund in a difficulty, had it not been for a very welcome contribution of £15,000 from the British Charities Association, for distribution to hospitals in the London area. Income also included £7000 from one anonymous donor, and £5000 from another, as well as a long list of annual subscriptions and donations, headed by H.M. the King, and the annual contribution from the League of Mercy, a never-failing source of strength to the Fund.

The three things that caught the eye in the Distribution Committee's report, said His Royal Highness, were first the enormous improvement in the ordinary finances of the hospitals of London; secondly, the help given to those institutions to enable them to extend their operations; and thirdly, the provision of accident beds. In regard to the last-mentioned, the report of the Ambulance Cases Disposal Committee had been acted on, both by the London County Council Ambulance Service and by the Distribution Committee of the Fund. An increase in accommodation for these cases had been made one of the objects of the Wells' legacies distribution; and out of the 301 additional beds, 53 would be reserved for accidents. Another forward movement by the King's Fund was described in the report of the Management Committee—namely, that the area of operations was to be extended.

The Propaganda Subcommittee, under the chairmanship of Lord Burnham, continued to be very energetic. The following new members had been appointed: Mr. F. J. Whitbread, Sir Richard Terry, Mr. Arthur Powell, K.C., Mr. H. C. King, Mr. MacIver Grierson, and Miss N. Nickalls. The work of the Committee, said the Prince, is partly direct propaganda for the hospitals and the King's Fund, and partly money-raising schemes with propaganda thrown in. The Committee was now arranging for lectures in schools, designed, not to collect money, but to spread amongst the rising generation, of all classes, a knowledge of the work of hospitals, and the debt which the whole community owes to them. Dr. Lazarus Barlow was acting as chairman of a special subcommittee for this purpose. They had at their disposal a panel of expert lecturers, and applications from schools were beginning to come in. Another subcommittee, with Sir Richard Gregory as chairman, had arranged a series of popular scientific lectures in various parts of London for early next year.

Before concluding his speech His Royal Highness mentioned that he proposed to appoint the following three members of committees to be members of the General Council: Dr. Louisa Aldrich-Blake, Mr. Lionel de Rothschild, and Mr. Walter Spencer; and to be a member of the Revenue Committee Mr. W. Pett Ridge, while Sir George Lawson Johnston would take the place of Sir Alan Anderson as chairman of the Revenue Committee.

A vote of thanks to His Royal Highness having been proposed by the Viscount Cave, seconded by Sir Alfred Bower, the Lord Mayor, and carried with acclamation, the Prince briefly replied and the proceedings terminated.

MEDICINE AND THE LAW.

REMOVAL FROM THE PANEL: APPEAL BY A CHEMIST.

A RECENT case in the King's Bench Divisional Court concerning an insurance chemist is of interest also to insurance practitioners in showing the very wide and apparently unrestricted nature of the discretion of the Minister of Health when removing from an insurance committee's list the name of a doctor or a chemist, and in emphasising the extensive judicial powers which are now exercised by Government departments without any effective right of appeal. An insurance chemist was convicted of breaches of the Dangerous Drugs Act; he was fined £100, and in accordance with the customary practice the Home Secretary cancelled his authority to supply dangerous drugs. The Minister of Health thereupon instituted an inquiry under Part VII. of the Medical Benefit Regulations. At this inquiry, be it noted, neither the character of the chemist nor the nature of the offence was considered; the only issue was whether the result of the withdrawal of the chemist's licence to supply dangerous drugs was in itself prejudicial to the efficiency of the insurance service. After considering the report of the inquiry committee, the Minister decided this issue in the affirmative. The Minister offered to permit the chemist to remain on the panel for the limited purpose of supplying appliances and proprietary or other medicines whose supply did not involve a high degree of care—in other words, to be in substantially the same position qua insurance customers as an unqualified person. The chemist declined this offer, and the Minister accordingly removed his name from the insurance committee's list. The chemist then sought by a writ of *certiorari* to cancel the Minister's order. His counsel argued that the Minister's discretion was limited; the National Insurance Act clearly contemplated the inclusion on an insurance committee's list of persons who were not entitled to supply everything, and therefore the Minister could not say that the continuance of a chemist on the list was prejudicial to the efficiency of the service solely on the ground that—owing to the withdrawal of the Home Secretary's licence—the chemist was not legally able to supply dangerous drugs. The Attorney-General, for the Crown, submitted that it was for the Minister to be satisfied whether or not it was prejudicial to the efficiency of the service that the chemist should remain on the panel; the Minister after due inquiry had been so satisfied and the court had no power to intervene. In giving judgment the Lord Chief Justice made it clear that the court had to consider only the question of jurisdiction and not an appeal upon merits. The court were quite satisfied that there was no ground for suggesting that there was an excess of jurisdiction on the part of the Minister. This case once again recognises the claim of the Minister of Health to possess a sole and final discretion in deciding upon the removal from insurance service of doctor or chemist. Provided that an inquiry under the Medical Benefit Regulations has been instituted as a necessary preliminary, it seems clear that there is no effective means of questioning the Minister's decision.

Verdict of Manslaughter against a Medical Man.

At the Central Criminal Court on Dec. 12th Dr. Percy Bateman was found guilty by a jury of manslaughter of a patient, and was sentenced by Mr. Justice Shearman to six months' imprisonment in the second division. The charge was that failure to call in a second medical practitioner and to arrange for an immediate operation, in the circumstances which arose during a confinement, caused or accelerated the woman's death. Dr. Bateman, in giving evidence on his own behalf, said that the nurse who called him in on July 23rd told him that the woman had had pains for two days. On examination he felt the head of the child, gave chloroform, and applied instruments which slipped as it was a transverse presentation. He then performed manual version and delivered the child feet first, afterwards removing the after-birth by putting his hand into the uterus when it came away without the use of force. Some time later, after treating the woman for urgent shock, he discovered that the uterus itself had come away with the after-birth. He decided that the patient was unfit to be removed to hospital, and on each of his twice-daily visits from July 24th to 28th, continued to feel that the patient was never well enough to stand an operation. As the family were worn out he ordered removal to hospital on July 28th. The woman died there two days later. Dr. J. Bright Banister, in giving evidence for the defence, stated that he only knew of two other cases where the uterus had been removed, and in both of them no operation was performed. The woman's chances of life were, in his opinion, as good left where she was as if she had been operated upon. Dr. C. H. Roberts agreed that, as the patient was suffering from acute shock, nothing more could be done beyond leaving her at rest in bed. In summing up, the judge instructed the jury that they could only convict a doctor of causing death by negligence if he had done something which no ordinary skilful doctor should have done. After an absence of an hour and a quarter, the jury brought in a verdict of Guilty.

Tests for Drunkenness.

A man, 35 years of age, was charged at Bow-street police court recently with drunkenness while in charge of his motor-car, and the case against him was dismissed after the magistrate had heard the evidence of Dr. A. S. Woodwark, who had been called in to examine the defendant at his request at the police station, and of Sir James Purves-Stewart. The police surgeon had examined the man at 1.28 A.M., and Dr. Woodwark at 1.48, and a police inspector considered that in the meantime the condition of the accused had changed considerably. Dr. Woodwark allowed the accused to drive him home after the police station formalities had been complied with. He did not consider that the tests applied by the police surgeon were sufficient. Sir James Purves-Stewart, called as an expert for the defence, was of opinion that the examination by the police surgeon was imperfect, and that the tests applied, though satisfactory as far as they went, were elementary and inconclusive. In comment it may be pointed out that frequently at police courts the question whether or not a man was "drunk" at a certain time produces conflicting medical evidence and criticism of the tests applied at the police station. It appears desirable that legal and medical authorities should arrive at a definition of the meaning of the word "drunk" when applied in the police court, and that tests fairly easily applied should be devised whereby "drunkenness" should be established or disproved, if possible, more satisfactorily.

An Impostor.

In The Lancet of Dec. 6th, p. 1216, there was published a warning against an old man named Ferguson, stated to be soliciting alms from medical practitioners by claiming to be a colleague in distress. The warning came from Leeds, and apparently before it had appeared Mr. Ferguson, alias Merrilees, 75 years of age, had been apprehended and sentenced to three months' imprisonment in the second division. This sentence, hardly long enough perhaps to prove an effective deterrent and to protect possible future victims, was brought about through a rather quaintly conceived attempt to extract money from Dr. W. Macargur Scott. Dr. Scott had already given the man £3, believing him to be a brother medical practitioner in distress, when he returned one day and offered to sell him an F.R.C.S. diploma for five guineas, saying that Sir Robert Jones was distributing 200 such "honorary diplomas," and had allowed him (Ferguson) to have one to dispose of. He said to Dr. Scott: "It will look well on your door-plate"; but Dr. Scott, when he had recovered from his astonishment, kept his money in his pocket and communicated with the police. Ferguson's claims to medical qualifications were proved to be unfounded. His last known employment had been that of a lavatory attendant at Manchester.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

FURTHER SITTINGS.

(*Continued from p. 1237.*)

On the resumption of its sittings on Dec. 16th, under the chairmanship of Mr. H. P. Macmillan, K.C., evidence on behalf of the

Association of Poor-law Unions

was tendered by the Rev. P. S. G. Propert (its President), Mr. R. A. Leach, Mr. J. H. Ford (Leeds), and Mr. J. W. Flint.

Mr. Propert declared that in his 30 years' experience the lunacy laws in their relation to the Poor-law had worked smoothly and satisfactorily; there had been an absence of serious complaints. The Chairman commented on the fact that if a person became mentally sick and was received into a Poor-law institution he thereby became, for the time, a pauper, but this did not happen with a person suffering a physical complaint for which he entered a general hospital. Mr. Propert's rejoinder was that Poor-law hospitals were becoming very popular, and he believed the Poor-law stigma was passing away now. He agreed, however, that in this regard mental illness should be approximated to physical illness. Treatment without certification he considered would be a great advantage.

Mr. Leach thought an alleged lunatic should have all the protection given under Section 13 of the Act. The standard of medical skill in Poor-law institutions might not be as high as in mental hospitals, but the standard of the nursing there was as high as anywhere.

Licensed Houses.

Dr. F. H. Edwards, Medical Superintendent, Camberwell House, said licensed houses came into legal existence in 1774, but prior to 1811 no certificates were required in the case of pauper patients detained n them. The only protection these received was that those detaining them might have to answer an action at law for wrongful detention. In 1847 there were 141 licensed houses, with 6629 inmates, 3996 of these being paupers. In 1914 there were only 68 licensed houses, having 3493 inmates (638 paupers). It was chiefly the small licensed houses which were eliminated, and the largest now existing had provision for 672 patients. Licensed houses were not so distributed as to cover the country properly. The licensed house was not carried on for charity but for gain, and some were started by medical men specialising in mental disorder. He described the safeguards enjoyed by the patient in a licensed house, and said that to suppose there was illegal detention would connote a conspiracy between the doctors, the magistrates, and the visiting Commissioners. In the case of his own institution, it was visited by the Lunacy Commissioners eight times a year.

On the following day Sir Cecil Chubb was called. He said he was the proprietor of the Old Manor House, Salisbury, the largest and one of the oldest licensed houses in the country, comprising 19 separate houses which, the witness contended, rendered classification very effective. The patients at present in residence numbered 501, 18 of whom were voluntary boarders, and 150 ex-Service patients. There was a medical superintendent, the staff consisting of four medical men, all of whom were entirely engaged in looking after the medical condition of the patients. The nursing staff numbered 60, excluding ward-men. The probationer commenced at 30*s.* and worked up to £60 and £70 a year; nurses worked eight hours, and sometimes less. Practically all the patients admitted were paying patients, and the average fee charged worked out at £2 14*s.* 9*d.* per week. Many paid £2 2*s.*; some less. With regard to the question whether visitation by the Lunacy Commissioners was apt to become perfunctory, Sir Cecil Chubb said that the patients were given every possible opportunity of speaking to the visiting authority; in fact, on their last visit the Commissioners interviewed 14 patients privately. During the last 14 years he had had no case in regard to which the Commissioners were not satisfied that the patient was properly detained. Answering the Chairman, he said a certain number of the cases to whom leave of absence was granted as an experiment had not returned, but most of them did return. He regarded this granting of leave as a useful provision when convalescence was reached.

The Chairman asked whether when a patient was granted leave his relatives or friends were held responsible for him. He assumed that if the patient returned after such absence he simply resumed his place in the ordinary life of the institution. If after the expiry of the term nothing more was heard of the patient, did the witness then proceed to discharge him?

Sir Cecil Chubb said that 14 days must elapse before any action was taken, and after the expiry of that time steps were taken to discharge the patient. It was not regarded as a duty on the part of the institution to recapture such patient. He added that it was his own opinion that in such a case the onus should be on the friends to ask either for an extension of the leave or the discharge of the patient. On the question of policy as between pauper and private patients, Sir Cecil Chubb thought the rate-aided patient should also have the advantage of two medical certificates. At present it was possible to get a patient into a licensed house on the rate-aided form.

The Chairman: We have been impressed by the divergent methods by which persons reach institutions for the insane. It is undesirable that the methods should be so diverse. I think we are all agreed that there is no reason why one class of person should require two medical certificates and another require one, but we are concerned to consider whether two certificates are necessary in all cases. There are many cases as to which there can be no dubiety, and a possible middle course might be that where any doubt is entertained either by the single doctor or by the judicial authority or justice that either the medical practitioner or the certifying authority should be entitled to call in a second or any number of opinions. Whether that would meet the view it is difficult to say, but it has the drawback that it would leave it to the discretion of the single doctor to decide.

Criticising the preliminaries of the reception of a patient, from the point of view of adequacy of machinery, the witness said that it had happened once or twice that the present method had resulted in persons being brought into the institution who should not have been there. His doctors had refused to receive such patient. There might have been a mistake in diagnosis; for instance, a country practitioner might confuse a case of delirium tremens with one of insanity. He maintained that the person signing the reception order should personally see the patient. As regards the urgency order it had been laid down under Section 11 that it should be granted where it was expedient in the public interest that the patient should be detained. He thought there should be a provisional order of short duration, say of three days, which could be extended. He agreed that the existing code adequately safeguarded the patient in the matter of discharge. As to the rate of recovery at the Old Manor House, in 1923 the total percentage of recoveries [illegible] compared with direct admissions—eliminating transfers—had been 31·64. The average rate of discharge from 1914–23 had been 37 per cent. There were, of course, recurring cases. As to the reception of voluntary patients, he did not like receiving them, for the reason that the voluntary boarder was of one of two categories. There might be the incipient case of insanity which should be treated on different lines at special institutions. He objected to receiving voluntary boarders and later having them certified. Since the Harnett case there had been many more applications from would-be voluntary boarders than formerly, simply owing to the great reluctance on the part of doctors to certify. Very recently a medical man declared to him that he would not certify a person for £20,000. Replying to a question from the Chairman as to whether, on acccount of this reluctance, cases were reaching the institution under the guise of voluntary patients who, normally, would come as certified ones, the witness said that was so. He promised to furnish the Commission with a return giving the number of voluntary patients in his institution from January, 1923, to the present date.

Sir Humphry Rolleston asked whether the reluctance of doctors to certify might not act against the general operation of the law by making it difficult to get people under any kind of control before they had gone so far that curative measures would not have a proper chance.

Sir Cecil Chubb replied that this was a question for the doctors, though he thought there was a tendency in that direction, judging from the number of applications received from voluntary boarders.

Dr. Frank Fawcett was the next witness. He is a Medical Visitor to licensed houses, appointed under Section 177 of the Act, for East Sussex. In this capacity his experience had extended to 33 years. He described the procedure at his visitations four times a year. Special attention was paid to the recent admissions, and all papers relative to them were gone through and the patients seen. At the visitations every opportunity was given to patients to privately interview the visitors. If patients were out on leave, a full report about them was made. Complaints were almost solely concerned with continued detention, but they were patiently listened to. They were given to understand that visitors were a means of communication with the outside world. He had never felt that a patient seen by him had been fit for discharge, unless he were so far recovered that discharge was imminent. He did not remember an instance in which a patient, at the first interview, alleged he ought not to have been detained.

Mr. H. Snell, M.P., questioned the witness as to the actual facilities patients enjoyed to make a real complaint privately, especially as five or six visitors were together going round. The witness said encouragement was given to patients to say anything which was on their minds, and this was not difficult as the majority of the patients were seen in their rooms, not in a large place where there were a number of patients. Answering the Chairman, who asked whether there was any risk that patients might be deterred from making complaints because of possible punishment afterwards, or being made to feel that it might be the worse for them afterwards, he replied that he felt sure that in the three institutions which came into his visitations nothing of the kind occurred.

The next witness was Sir James Barr, also a medical visitor, appointed under Section 177 of the Act, in the Liverpool area, to Tue Brook Asylum. He explained that he had performed this function 40 years. He considered that the provisions of the Act were efficacious as a safeguard against the undue detention of patients. The medical proprietor had always been anxious for the recovery of his patients, and he took every suggestion made to him in regard to both treatment and administration. He had not heard a complaint for years, even about diet. Complaints were more common and emphatic from undoubted cases of insanity than from those on the way to recovery, and the only complaints he had were from the first of these, and mostly took the form of objecting to their detention. There might be a difference of opinion sometimes as to when a recovering patient might be let out. There were only about six voluntary boarders in the institution, but he thought this class should be encouraged. If people were to understand clearly that the benefits of an institution could be had without certification probably cases would come at an earlier and more curable stage of their illness. Most of the cases coming in under the voluntary guise he regarded as not properly belonging to that class; they were certifiable. He thought it would be better for the judicial authority to see a patient, in preference to telling a patient he could see the judicial authority. He did not see any special advantage in having two medical certificates. In reply to Lord Russell, who asked whether care was take to let the patient know that it was when the judicial authority was present that the opportunity for an appeal against incarceration occurred, he said the point was that the judicial authority must satisfy himself that the patient must be detained.

Mr. Snell asked whether the desire of the medical proprietor to cure his patients quickly was due to his wish to have a good statistical record. The witness replied that there was no financial reason against it, as there were always plenty of new patients. When a man was approaching the stage of convalescence, his attention was drawn to the fact by the medical proprietor.

Answering Mrs. Mathers, the witness said that difficulty was sometimes experienced in getting relatives to undertake to look after patients on their discharge from the institution.

Sir Humphry Rolleston, dealing with the protection to medical men certifying which the witness wished to have increased by law, asked whether Sir James Barr had any suggestions to offer.

In reply, the witness said he had no specific recommendations, but at present medical men felt so strongly on the matter that unless a man or woman were palpably and dangerously insane they could not be got to certify. They felt they might be liable at any time to have to withstand an action at law. He added that he would prefer the mechanism for dealing with incipient cases to be attached to the mental hospital, in preference to a general hospital, such as the Liverpool Royal Infirmary; it would be more specialised, and the surroundings and atmosphere would be quieter and more congenial.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the health statistics for three counties and three boroughs for 1923:—

Name of county or borough.	Estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Kent	1,075,408	18·3	10·6	0·95	1·4	1·4	25	48	3·2
Essex	930,360	18·6	9·8	0·83	1·3	1·5	25	46	3·2
Cheshire ..	636,300	17·3	11·1	0·77	1·2	2·2	31	65	4·5
Ealing	68,120	15·6	10·6	1·03	1·7	1·8	—	58	3·8
Wimbledon ..	58,000	14·9	9·4	0·64	1·2	1·6	25	44	1·1
Dover	40,740	21·5	10·4	0·81	1·6	1·6	21	50	3·4

Kent.

Dr. Alfred Greenwood draws attention to the effect of the housing shortage on the birth-rate. Many young people are prevented from getting married and those who do marry have often to live in rooms where children are not wanted. The highest infant mortality-rates among the urban districts in the county were 72 in Penge and 64 in Chislehurst, while Lydd and Sandgate had 44 and 43 births respectively and no infant deaths. The lowest rates after Lydd and Sandgate were Sandwich 15, Herne Bay 19, Tenterden 21, and Ashford 24. Among the rural districts the lowest rates were 13 in Blean, 25 in Maidstone, 26 in Thanet, and 28 in Tonbridge, while the highest were 77 in Tenterden, 69 in Bridge, 68 in Faversham, and 65 in Cranbrook. For the whole county the infant mortality-rate was the lowest on record.

The notifications of enteric fever totalled 115 as compared with 87 in the previous year. In Rochester city three schoolboys were thought to have contracted the disease from eating monkey-nuts spilt into the mud of the river near the sewer outfall during the unloading of a cargo. The endeavour to form "care" and "after-care" committees throughout the county for tuberculous patients is only meeting with partial success. In many districts the attitude adopted towards the movement is that this is the business of the State, that it is difficult to raise the necessary funds, and that such committees cannot find employment. The county tuberculosis scheme does not include the home nursing of tuberculous patients. Dental treatment, ancillary nourishment, and surgical appliances are provided in cases where the financial circumstances of the patient are insufficient. There are 87 open-air shelters in use and these are much appreciated. They were used last year by 129 patients, and particular care is paid to the suitability of the site chosen for the shelter. Thirty-one cases from Kent were admitted to various vocational training colonies during the year; and 29 patients were discharged, of whom only 11 completed their course of training. The opinions of the tuberculosis officers in the county vary considerably as to the benefits of sanatorium treatment as at present carried out. Dr. F. J. Pierce, medical officer of Lenham Sanatorium, speaks of the useful work done by the training section at Lenham. Two trades are taught—namely, furniture repairing and upholstery, and general house repairs. Of the 49 men discharged from Lenham during the year 30 completed the 12 months' course of training and were found to be adapted to the new trade and in several instances exceptionally capable workmen were turned out. The training section have effected a valuable improvement by the completion of a verandah for the west wing of the sanatorium. Commenting on the high death-rate from cancer, Dr. Greenwood says this disease may be now said to have usurped the title formerly bestowed on tuberculosis—"the white man's scourge." A study of the table for the six districts confirms this dictum. Details are given of the efforts made to coördinate cancer research by the institution of the British Empire Cancer Campaign in the early part of the year.

Dr. W. L. Cassells, the whole-time V.D. medical officer, gives a hopeful report on the work. He thinks the work of the clinics is largely responsible for the decrease in the number of new cases. A considerable number of congenital cases have been sent to the clinics as the result of lectures given during the summer to the nurses, midwives, and health visitors, on the signs and symptoms of venereal disease. The attendances at the clinics show an increase largely owing to the better facilities for the intermediate treatment of gonorrhœa. The list of general practitioners approved for "arsenobenzol" treatment now contains 86 names. The work of the county pathological laboratory increases steadily, and an experimental branch was established during the year at Sheerness. The laboratory has been approved for official examinations of Grade A and certified milks. A large variety of work is carried out, including the examination of tissue sections and blood-sugar tests.

Essex.

Dr. W. A. Bullough refers to the bad reputation which Essex "seems to possess" with regard to tetanus. "A London coroner, in August, stated that about a dozen deaths from lockjaw, which had been brought to his notice within the last two years, had all come from Essex." The heavily manured market-garden land round about Barking, Romford, &c., seems to be indicated by rumour. Dr. Bullough has been investigating. He finds that the deaths from tetanus in Essex during the four years 1918–21 number 3·7 per cent. of the total tetanus deaths in England and Wales, whereas the population of Essex is 2·4 per cent. of the population of England and Wales. He thinks the result cannot be regarded as a justification for the bad tetanus reputation of the county. A prophylactic serum is supplied to any medical practitioner by the public health department and during 1923 three doctors were so supplied. A small outbreak of typhoid fever at Saffron Walden was thought to be associated with an insanitary encampment of van-dwellers. A number of the local children attended their entertainments and purchased sweetmeats from these people. In the case of another small outbreak at Tendring, the first case was thought so have contracted the infection by bathing in the Stour at a place where the water is unsafe to drink. The boy infected had been submerged and had swallowed a considerable quantity of water.

The public health department during 1923 undertook some research work into the possibility of a relationship between the amount of silica present in water and the incidence of cancer. The conclusions reached did not indicate any such relationship. Owing to the experience that female patients infected with venereal disease are very reluctant to attend clinics, the experiment has been tried of treating infected mothers and children at their own homes. The report as to the alleged disease has been received from midwives and others and the treatment has been successfully carried out by two women medical officers on the county staff. It is hoped to extend this method of treatment.

Cheshire.

Dr. Meredith Young says that for the first time it is possible to give the cost of the various public health services of the county per head of the population. They are as follows :—

	Pence.
Maternity and child welfare	2·427
Venereal diseases	0·218
Tuberculosis	4·783
General public health	0·711
Mental deficiency	0·844
Medical inspection of school-children ..	2·623
Total	11·076

There are only nine other counties in England and Wales, he says, where the total cost of these public medical services is lower than in Cheshire. The county has at present six county midwives who receive a grant of £60 per annum and keep their own fees. The grant is given to enable a midwife to settle in an area where there is no trained midwife practising and is withdrawn when she has a practice sufficient to support herself. Of the 250 practising midwives 181 are trained and 69 are untrained. Twenty-six of them cannot take the temperature or pulse of their patients. The number of cases of ophthalmia has steadily lessened since each midwife was provided with collosol argentum in a drop-bottle. Of the 56 cases of ophthalmia, four severe cases were treated in hospital and a nurse was engaged to attend four other cases at home. All the cases are said to have recovered without any scar or injury to sight. Building activity has been moderately well maintained, and there is a tendency to urbanisation in many parts of the Wirral rural district.

Very few local authorities have put into operation the full powers conferred by the Milk and Dairies (Amendment) Act. Most of the farm buildings inspected by Dr. Young leave a great deal to be desired in the matter of cubic space ventilation and cleanliness. Very few local authorities have initiated any system for the detection of tuberculosis in cattle. Dr. Young points out that the medical officer of a large town, in the case of a milk-borne outbreak, is put in a difficult position by the fact that the milk may be a mixture of milks from a score or more of farms. In the case of a recent outbreak in a metropolitan borough the suspected milk came from 100 different farms. Dr. Young thinks it would be an immense help to such a medical officer if he were able to rule out the carefully managed farms and concentrate on the undesirable ones. Unfortunately for Dr. Young's theory, milk-borne epidemics in the past have frequently been associated with unrecognised cases of disease and have been known to occur in connexion with farms of good repute.

Ealing.

Dr. Thomas Orr mentions that the maternity and child welfare centre and the school clinic are located in the same centrally situated building, and that by this arrangement the work of these two branches of health activity is facilitated and coördination promoted. During the year ten applications for registration as purveyors of milk were received. Of these, two were refused on account of unsuitable premises; one application from a person retailing milk in Ealing, whose premises were in an adjoining district, was granted after the receipt of a satisfactory report from the medical officer of health of this adjoining district. The housing difficulties still remain the same, says Dr. Orr, and little progress can be made until the Government evolve a large and practicable scheme of house building on a good basis. The school report shows a great improvement in the teeth of the children. Thus the percentage of entrants with sound teeth has gone up from 23 in 1915 to 55·2 in 1923, the percentage of the "intermediates" from 26·2 to 52·5, and the percentage of "leavers" from 35·7 to 80·5. As regards the improvement in the infants, Dr. Orr can only attribute it to the steady educational work done by the health visitors and school nurses. The parents are beginning to appreciate that sound teeth are of prime importance to health, and that the best way to secure sound teeth is by proper mastication, the selection of a suitable diet, and the avoidance of sweetmeats between meals.

Wimbledon.

Wimbledon, says Dr. A. Gilmour, has always been regarded as one of London's most desirable dormitories. Many persons are desirous of residing in this district, but to build houses which would only be attractive to those at present residing outside the district would do nothing to relieve the overcrowding that exists. Besides, the Wimbledon area is practically built up with the exception of a few isolated sites to which restrictive regulations apply, or which are not on lines of transport. The congestion in Wimbledon can, therefore, only be relieved by building in other districts. Owing to the need for internal structural repairs, the accommodation of the South Wimbledon day nursery was cut down towards the end of the year from something over 40 to 30. It is surprising to learn that a day nursery is needed at Wimbledon. One reason is the number of laundries in Wimbledon which attract the working mothers. Another reason is the dearth of domestic servants. The occupations of the mothers for 1923 were, principally, laundresses 22, domestic servants 6, and charwomen 9. The proportion of widows is not stated. Economically the proposition appears to be this. A staff of eight, consisting of a matron, a nurse, a cook, and five maids, look after the children of about 40 women, in order that these latter may go out to work elsewhere as laundresses and domestic servants. The payments made by the mothers are 6*d.* for one child, 10*d.* for two, and 1*s.* 2*d.* for three per day. The whole scheme is only rendered possible if subscriptions or State and rate subsidies are forthcoming.

Dover.

Dr. A. B. McMaster thinks that the provision of an open-air school will be valuable in the prevention of tuberculosis. The question is at present being considered by the education committee. Owing to the continued housing shortage, a number of large houses have been subdivided into flats and others have been sublet as "houses-let-in-lodgings." Dr. McMaster thinks that private enterprise should be encouraged to build more houses under the £100 grant scheme. The particulars given for the port administration show the need for incessant vigilance to prevent the introduction of infectious diseases. The passengers landed at Dover from the five cross-Channel daily services in 1923 numbered almost half a million, being about 100,000 more than in 1921 and 50,000 more than in 1922. About a quarter of the persons landed were aliens and three-quarters Britons, either returning home or visitors from another part of the Empire. The short voyage does not enable the captain of the vessel to know whether he is carrying persons suffering from an infectious disease. Passengers may also be incubating disease, and this has occurred during the year with regard to small-pox. An examination of the customs, railway, and vessels' staffs showed that most of them were well protected by revaccinations done during the war. Another possible source of infection is the passenger who travels overland from Marseilles. Such persons can only be traced by the help of the customs' officers, given readily to the port medical officer. Only four cases suffering from infectious disease were discovered among the passengers and removed to the isolation hospital. They were cases of diphtheria, scarlet fever, whooping-cough, and chicken-pox respectively.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 13TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 82; scarlet fever, 2026; diphtheria, 1103; enteric fever, 66; pneumonia, 1136; puerperal fever, 37; cerebro-spinal fever, 10; acute poliomyelitis, 15; acute polio-encephalitis, 1; encephalitis lethargica, 41; continued fever, 1; dysentery, 14; ophthalmia neonatorum, 104. There were no cases of cholera, plague, or typhus fever notified during the week. Of the 14 cases of dysentery, two were reported from Macclesfield, 1 from Bristol, 1 from Liverpool, 1 from Clitheroe (R.D.), 2 from Leicester, 4 from Friern Barnet (Msx.), 1 from Woking, 2 from Reigate.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 11 from scarlet fever, 38 from diphtheria, 59 from measles, 86 from influenza. In London itself the deaths from diphtheria numbered 14, and from infantile diarrhœa 7.

Obituary.

HERBERT WILLIAMSON, M.A., M.B., B.CH. CAMB., F.R.C.P. LOND.,

PHYSICIAN ACCOUCHEUR TO ST. BARTHOLOMEW'S HOSPITAL.

IT is with consternation that his contemporaries and many friends have learnt of the unexpected death of Dr. Williamson, at the age of 52. He seemed, least of all men, doomed to die in the plenitude of his powers, and indeed of late years he appeared to those who watched his career to grow in stature both as a physician, a trusted colleague, and a wise and prudent man of affairs.

When Herbert Williamson first came to London and St. Bartholomew's Hospital from Cambridge, in 1894, he very quickly made a mark, and even before he was qualified was recognised by his teachers—and, what is perhaps more significant, by his fellows—as a man of exceptional powers of mind and industry, and still more of exceptional charm. There were few indeed who knew him in those days who did not foresee for him a fortunate and prosperous career; and when after qualification and the holding of the usual house appointments he appeared for a time to hesitate between the claims of surgery and gynæcology, it did not to his contemporaries appear to be a matter of much moment. Whichever career he should choose they felt he must arrive among the first in the profession. Nor were they deceived. From the moment he began to teach it was clear that beyond other men he had the gift of imparting knowledge, and from the moment he entered on private practice it was evident that his care and clinical instinct, backed by his personal charm, were an assurance of success.

He was already in extensive private practice when in 1906 an opportunity arrived for his seniors to recognise his merits by the creation of an additional post in the obstetric and gynæcological departments, and Williamson became a member of the staff of St. Bartholomew's Hospital earlier than any of his contemporaries. Since that date, as his seniority has grown so has his influence in all the councils of his colleagues, and for the last few years none has been in such request for guidance and deliberation in all the manifold difficulties of post-war hospital work. Nor were his merits in this respect unvalued outside his own school, and he undertook much work in various connexions, as an examiner and on committees concerned with the teaching of his subjects. Of his private professional work it need only be said here that he had all and often more than he could possibly manage to do, and that his devotion to his hospital, and no less to his private patients, led, no doubt, to the deterioration in the good health which he had for many years enjoyed. None, however, could have supposed, even in the last few weeks, that his health was seriously undermined, and even his closest friends and the colleagues most intimately associated with him in work did not suspect more than a passing indisposition. He left his home, it is believed, for a walk, hoping to rid himself of the malaise and lassitude induced by a recent attack of influenza and by a consistent habit of overwork, and, we may hope, passed suddenly and painlessly from the world which respected, admired, and loved him.

Correspondence.

"Audi alteram partem."

HONEY: ITS VALUE IN HEART FAILURE.

To the Editor of THE LANCET.

SIR,—It has been said that the main rôle of carbohydrate in metabolism is to provide fuel for muscular energy. I desire to call attention to the great value, which I believe it to have, of honey as a restorative in health and sickness.

When muscular energy is required, and particularly after emotional stimulation of the sympathetic nervous system, there is found to be an increase of sugar in the blood. The various sugars found in the body may be classified among the mono- or the poly-saccharides: glycogen belongs to the latter group, and is apparently a storage product in muscles as well as in the liver. The energising effect of sugar on muscular effort has been proved by Schumberg's experiments with the ergograph. Muscle in action, it has been computed, can consume three and a half times as much sugar as muscle at rest. Starling found that the normal heart used up sugar at the rate of about 4 milligrammes per gramme of heart per hour. Nectar, which bees collect from various flowers, contains a special sugar which undergoes some change to honey.

The question is whether honey does not contain some special vitamins, and if boiling destroys certain vitamins, then, presuming honey contains vitamins, there is an advantage in honey over commercial sugar. If sugar, and pre-eminently honey, be the most potent fuel to provide energy for muscle, should we not remember to give it for that all-important and most vital muscle of all—the heart, which gets no complete physical rest: other muscles, yes, but, for the heart, no respite—until "the tale is told."

In severe cases of malnutrition with heart weakness I have found honey to have had a marked effect in reviving the heart's action, and keeping the patient alive, and I had further evidence of this in a recent case of pneumonia. The patient consumed 2 lb. of honey during the illness; there was an early crisis with no subsequent rise of temperature, and an exceptionally good pulse. Instead of depending on milk and beef extracts, as is done in so many cases of fever when the stores of sugar in the body are being rapidly used up, I suggest that honey should be given for general physical repair, and above all, for heart failure, and for reasons similar to those set out above, grapes constitute a valuable adjuvant. Herbivorous animals thrive in clover, no doubt because of the nectar, which is probably vitaminous, in the white and red clover flowers. "My son, eat thou honey, because it is good" (Prov. xxiv. 13).

I am, Sir, yours faithfully,
G. N. W. THOMAS, M.B., Ch.B. Edin.,
Of the Middle Temple and S. Wales Circuit,
Dec. 15th, 1924. Barrister-at-Law.

INTUBATION OF THE COMMON BILE-DUCT FOR STRICTURE.

To the Editor of THE LANCET.

SIR,—The case reported in THE LANCET of Dec. 6th by Mr. Zachary Cope interests me, as I carried out the same treatment in 1917. In my patient, the stricture was high up in the common hepatic duct, and was the result of a bullet wound. The gall-bladder had previously been removed elsewhere. Bile flowed freely from a thoracic sinus, where the bullet had entered; the patient was jaundiced. After some trouble I opened up the stricture, dilated it, and drained the abdominal wound. The immediate result was good, but the stricture soon recurred. I reopened the abdominal wound and dilated the stricture again: a plastic operation was out of the question, so, in desperation, I fixed a piece of No. 10 Jacque's catheter in the duct. The immediate effect was most satisfactory, the thoracic sinus and abdominal wounds healed, and the patient, who had been deeply jaundiced, regained his colour and health. This improvement was, however, only temporary. Twelve months later signs of biliary obstruction recurred, and the patient showed evidence of infection. I reopened the wound and found the bile-duct completely blocked by the tube, which was coated and entirely filled with bile salts and debris; it was removed. The patient died one week later. Extensive suppurative cholangitis was found in the dilated bile-ducts in the liver.

About the same time, curiously enough, a similar case was operated upon at St. George's Hospital by the surgical specialist who had had charge of my patient at the Military Hospital. A woman, aged 36, was admitted, with signs of biliary obstruction and infection. Thirteen years previously she had been operated on by the late Mr. Clinton Dent, who removed a gall-stone, which was impacted in the common bile-duct. Later a stricture of the duct occurred. For the relief of this Mr. Dent implanted a piece of rubber tubing in the duct. The patient was readmitted in 1917 with obstructive jaundice of two months' standing. At the operation the duct was found to be completely obstructed; the rubber tube, which was blocked, was removed, but the patient succumbed a few days later.

It would appear from this experience that intubation of the bile-duct is a risky procedure, but the condition is a desperate one and the risk taken is justified if a plastic operation on the duct is impracticable.

I am, Sir, yours faithfully,
London, Dec. 8th, 1924. HUGH M. RIGBY.

Medical News.

UNIVERSITY OF LONDON.—At recent examinations the following candidates were successful:—

M.D. EXAMINATION.

Branch I., Medicine.—Eric A. Coldrey, St. Bart.'s Hosp.; Calvert M. Gwillim, St. Bart.'s and St. George's Hosps.; Robert Hunt Cooke, St. Bart.'s Hosp.; Charles G. Lewis, University of Birmingham and Univ. Coll. Hosp.; Ivor Lewis and Bruce Maclean, Univ. Coll. Hosp.; Bertram Sydney Nissé (University Medal), London Hosp.; Donald C. Norris, London Hosp. and Université de Paris; Owen W. Roberts, King's Coll. Hosp.; Kathleen A. H. Sykes, London Sch. of Med. for Women and Univ. of Liverpool; and Raghunath Sabaji Tirodkar, Univ. Coll. Hosp. and Grant Medical College.

Branch IV., Midwifery and Diseases of Women.—Bryan L. Jeaffreson, St. Bart.'s Hosp.

Branch VI., Tropical Medicine.—Maurice L. C. Irvine, St. Thomas's Hosp. and London Sch. of Tropical Medicine.

M.S. EXAMINATION.

Branch I., Surgery.—Oscar S. Hillman, Middlesex Hosp.; and David Levi, St. Mary's Hosp.

UNIVERSITY OF CAMBRIDGE.—At recent examinations the following candidates were successful:—

THIRD EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.

Part I., Surgery, Midwifery, and Gynæcology.—F. N. Adams, Caius; C. Adamson and N. F. Adeney, John's; G. L. Alexander, Trinity; R. D. Alexander, King's; T. F. Anderson, Trinity House; W. A. Bourne, Christ's; H. F. Brewer and W. Brockbank, Caius; A. D. Briscoe, John's; B. H. Burns, Clare; W. E. Chiesman, Corpus Christi; W. R. F. Collis, Trinity; J. W. E. Cory, Trinity House; J. E. D. Crozier and R. W. Cuningham, Caius; C. H. C. Dalton, King's; G. H. Day, Sidney Sussex; F. M. Deighton, Trinity; M. S. Dewhurst, Emmanuel; R. H. Dyer, Clare; H. W. Eddison, Christ's; J. L. Edwards and J. H. Gaddum, Trinity; N. T. Glynn, Clare; H. G. Goldwater, John's; H. F. Griffiths and K. E. Harris, Caius; J. Holmes, John's; W. Hunt, Christ's; J. J. Keevil and M. C. H. Kingdon, Caius; A. R. Lister, Trinity; D. P. Marks, Corpus Christi; L. P. Marshall, Sidney Sussex; J. G. Milner, Trinity; W. J. Montague, Selwyn; M. F. Nicholls, Clare; L. J. Panting and P. E. Pym, Caius; W. Richards, Emmanuel; D. Riley and J. Russell Smith, Caius; F. R. Sandford, Queen's; A. de M. Severne, Christ's; A. J. Smyth, Emmanuel; E. W. P. Thomas, Clare; E. J. E. Topham, Emmanuel; E. A. Trim, Christ's; J. G. E. Vachell, Jesus; T. E. Walsh, King's; A. G. Walter, Clare; H. A. Ware and J. L. Warner, Caius; and I. M. Harmer, Girton.

Part II., Principles and Practice of Physic, Pathology, and Pharmacology.—P. E. Bardsley, Caius; A. Barker, Christ's; W. S. C. Copeman, R. Cove Smith, and W. I. Daggett, Caius; J. H. Doggart, King's; H. G. English, Clare; M. W. H. Evans, Caius; R. B. Fawkes and J. A. Galletly, Queen's; W. H. Gervis, Caius; T. S. Goodwin, Pembroke; J. Gray, non-collegiate; F. N. Green, Magdalen; H. E. Harris, Christ's; K. E. Harris, Caius; B. D. Hendy, Downing; R. A. Highmoor, Clare; F. D. Howitt, Trinity; P. W. Jamie and A. A. Lees, Emmanuel; W. A. Lister, Trinity; S. M. Milner, King's; E. G. Morris, Clare; A. C. Mowle and H. B. Padwick, Emmanuel; T. M. Preece, John's; R. H. T. Rea, Caius; W. G. Scott Brown, Corpus Christi; F. A. H. Simmonds, Emmanuel; T. H. Sims, Pembroke; J. D. M. Stewart, Caius; G. B. Tait, King's; G. L. Thompson, Trinity; J. H. G. Thompson, Caius; and G. B. W. Walker and H. Yates, King's.

University of Liverpool.—At examinations held recently the following candidates were successful:—

Degree of M.D.

E. N. Chamberlain and A. R. Jones.

Degree of M.Ch. Orth.

E. B. M. Vance.

Final Examination for Degrees of M.B. and Ch.B.

Part III.—B. E. Acland, M. M. F. Arthur, P. D. Barling, T. Bellis, E. C. Benn, T. A. Clarke, H. A. Cole, R. Cotter, W. R. H. Ellis, E. A. R. Evans, C. G. Foxcroft, G. A. Fulton, J. Gaughan, Clara M. V. Gleave, H. Gobie, M. Godwin, W. J. Griffiths, A. D. Harper, L. F. Henry, Bertha H. Irvine, E. W. Johnson, C. P. Jones, G. F. Kinder, B. D. Knoblauch, Sarah Leigh (with distinction in Surgery), A. Oserovitz, R. D. Owens, J. T. C. Roberts, C. Sharp, R. S. Turner, G. R. Wadsworth, and T. W. White.

Part I.—J. L. Clegg, J. C. Edwards, A. B. Follows, J. F. Galloway, Elinor M. Gelling, M. Goldberg, Elizabeth M. Harding, D. G. Henry, B. S. Jarvis, A. N. Jones, J. S. Logan, M. A. Lombard, D. B. Macaulay, G. McLoughlin, R. M. Maher (with distinction), F. Murgatroyd, A. V. Russell, M. R. Sheridan, J. E. Wallace, R. G. Walmsley, Kathleen M. Ward, and Nora M. Wilson.

Part II.—Alice M. Luck, Isabel McKee, D. J. T. Magowan, J. Morrissey, Irene M. Neal, Mary T. Penrice, W. J. Pierce, Thirza Redman, and D. Roberts.

Diploma in Tropical Medicine.

H. S. Bilimoria, B. L. Davis (recommended for the Alan H. Milne Medal), C. B. Jennings, S. W. S. Lee, G. Macdonald, J. M. Mitchell, D. U. Owen, Beryl Palmer-Jones, E. J. Sankeralli, and H. Singh.

University of Sheffield.—In the recent Final Examinations for the degrees of M.B., Ch.B. the following candidates were successful:—

John R. Baker, Michael J. Finkelstone, Alys M. Gregory, Josias W. Jago, Oscar H. Swede, and Margaret Wesley.

University of Edinburgh.—At the graduation ceremonial on Dec. 19th the following degrees were conferred:

Doctor of Medicine.

Frederick C. K. Austin, Leslie C. L. Averill, James Brown (in absentia), *Nicholas S. Craig, †Douglas R. Cramb, *Alexander M. Drennan, Alexander D. Edington (in absentia), †Jessie Eeles, John W. Gray, John S. Harris, Frederick T. Ingram, †John M'Garrity, Douglas S. Robertson, Hilda D. Scott (in absentia), and †Muriel J. Thomson.

* Awarded Gold Medal for Thesis.
† Highly commended for Thesis.

Royal College of Surgeons of Edinburgh.—At a meeting of the College on Dec. 17th the following candidates, having passed the requisite examinations, were admitted Fellows:—

Ramrao N. Ajinkya, Thomas F. Andrew, Prabhat K. Bardhan, Edwin J. Bradley, Robert C. E. Brodie, Cecil J. Cellan-Jones, Joseph R. de Witte Connolly, David Cromie, Charles M. Eynon, Lawrence S. Fallis, Charles K. Fuller, Robert McM. Glynn, William A. Jackman, Arnold Leeming, Alexander P. G. Lorimer, Reginald F. Matters, Denys F. Murphy, Edgar R. Reay, Lambert C. Rogers, Evan K. R. Thomas, Victor H. Wallace, William G. Waugh, Robert T. Wells, and Angus H. Whyte.

London School of Hygiene and Tropical Medicine: *Research Appointments.*—Dr. H. H. Scott, at present assistant director in the Department of Helminthology in the Tropical Division of the School, has been appointed Milner Research Fellow in Comparative Pathology as from Jan. 1st, 1925. This appointment has been rendered possible by the coöperation of the Council of the Zoological Society, on whose premises Dr. Scott will carry out most of his investigations. Dr. Edward Hindle, until recently professor of biology (including parasitology) in the Cairo School of Medicine, has been appointed to undertake research work in spirochætosis.

Tropical Diseases Library.—The third annual report of the librarian has just been issued. On July 31st the library completed its third and last year under the trusteeship of the Seamen's Hospital Society. It passed, on August 1st, under the control of the newly-constituted London School of Hygiene and Tropical Medicine (University of London). The volumes of periodicals belonging to the Tropical Diseases Bureau will remain as before on permanent loan in the library. During the past year the net increase in the library stock was 179 volumes.

Sir William Arbuthnot Lane has undertaken the editorship of *The Practitioner.*

We regret to announce the tragic death, on Dec. 21st, of Dr. C. J. Pentland, as a result of a motor collision outside his house in Gower-street.

The late Dr. J. McGibbon.—John McGibbon, M.B., C.M. Edin., who died suddenly last week at his residence, 83, Durning-road, Liverpool, at the age of 62, will be greatly missed by the Scottish community resident in the city. He had long been a leading figure in all activities linking him with his native land, such as the Burns Club, the annual Caledonian dinner, and the Old Watsonian Society, of which he was treasurer. Dr. McGibbon graduated at Edinburgh University in 1884. He leaves a son, who has been associated for some years with him in practice.

Yorkshire Association of Graduates of the University of Glasgow.—The annual dinner of this association was held in the Great Northern Hotel, Leeds, on Dec. 5th, when there was present a company of 90 members and friends. Dr. G. Hanson (Bradford), the President, was in the chair. The chief guest of the evening was Prof. John Glaister, and Dr. J. B. Baillie, the recently appointed Vice-Chancellor of Leeds University, was also present. The annual report shows that the association is in a flourishing condition, there being now a membership of 126. Membership is open to all Glasgow graduates resident in Yorkshire, and further particulars may be obtained on application to the hon. secretary, Dr. W. MacAdam, Cromer Hall, Leeds.

The late Dr. J. B. Edis.—John Butler Edis, L.R.C.P. Edin., M.R.C.S. Eng., who died recently in Liverpool, was born in 1847, and qualified in medicine in 1871. He was a well-known figure in Liverpool medical circles, and was widely respected for the skill and care he devoted to the poor, who formed a large proportion of his practice. Although at one time senior surgeon to the Liverpool Hospital for Women, Dr. Edis found his main outlet in general practice, where his special knowledge made him much sought after. In his early life he had found great inspiration in the friendship of Dr. Barnardo, and his activities outside his profession were coloured by his influence. He died at the advanced age of 77, having celebrated his professional jubilee three years ago, when he received the congratulations and felicitations of his numerous friends in the Liverpool Medical Institution,

The late Dr. E. B. Roberts.—By the recent death of Edward Blackwell Roberts, after several weeks' illness, at his residence in Hawarden, Chester, at the age of 60, the village of Hawarden, where he had practised for over 30 years, has suffered a great loss. After studying at the University of Edinburgh and its extra-mural school in 1889, he qualified as L.R.C.P. & S. Edin., and L.R.C.P. Glasg. Dr. Roberts was medical officer for the county, the public vaccinator and Government factory inspector, and held besides a number of medical public appointments. He took a keen interest in all the social affairs of Hawarden, and was a prominent figure at any festival or sports meeting in the neighbourhood. In his earlier days he was an enthusiastic cricketer. His professional services were held in high regard by all classes of the community, and he was a generous though unostentatious donor in many cases of need. He is survived by his widow, one son, and three daughters.

Parliamentary Intelligence.

HOUSE OF COMMONS.

Tuesday, Dec. 16th.

Government Housing Policy.

The debate on the Address in reply to the Speech from the Throne was resumed.

Mr. Wheatley (who was Minister of Health in the late Labour Government) moved an amendment regretting that the Government were committed to a policy of leaving the solution of the housing problem mainly to private enterprise and the operation of occupying ownership, thus ignoring the importance of carrying out a long term scheme of building houses at rents within the means of the working classes and failing to take every advantage for increasing employment in the building and auxiliary industries.

Mr. Neville Chamberlain (Minister of Health) replying said that under the 1923 Act the number of houses approved up to date in the case of local authorities was 53,535, and in the case of private enterprise 116,858. For the 12 months ended Sept. 30th last there were built 110,000 houses. Of these, 14,500 odd were built by local authorities and 95,362 r 86 per cent., by private enterprise. The maximum number f houses ever built in the country in one year was 129,000. o-day in spite of the extraordinary limitations of labour nd material they had got within 19,000 of that figure. f the 110,000 houses he had mentioned, 90,000 were of a ateable value of under £26 a year. On Oct. 1st there were nder construction another 92,000 houses, of which 71,000 vere built by private enterprise. The scheme organised by Ir. Wheatley for the augmentation and better distribution f labour and materials was in his (Mr. Chamberlain's) view statesmanlike piece of work, and work in the right direction vhich he would support by every means in his power. he Government did not intend to proceed with the Bill ntroduced by Mr. Wheatley to deal with the cost of materials. he Government would, however, keep a watchful eye on uilding costs, and if they found that there was any reason o believe that the public were being exploited by anybody hey would take their own measures to stop the exploitation. peaking of Lord Weir's new method of house construction, Ir. Chamberlain said that recently he paid a special visit o Glasgow to see what was being done by Lord Weir and e came back very hopeful. He had made an arrangement hereby Lord Weir had undertaken to set apart a part of is factory for the production of a certain number of emonstrations of experimental houses to be supplied by cal authorities. With the concurrence of the Chancellor f the Exchequer he had set aside a sum of money in order give a grant to any local authority taking these xperimental houses. Lord Weir had authorised him to say hat the cost would be lower than that of a brick house. Ir. Chamberlain stated that he would give Mr. Wheatley's ousing Act a fair trial and it was not his intention to iscourage local authorities or throw any difficulties in their ay. The Act should stand or fall on its own performance ; ut he could not promise that if it failed it would emain in its present condition.

In the course of the subsequent debate,

Dr. **SHIELS** said that Scotland suffered very much more om bad housing than England ; 49 per cent. of the opulation of Scotland lived in one- or two-roomed houses. uberculosis figures varied exactly according to the density the population, and the situation in Scotland required ecial treatment because of that fact. Slum property had ot been seriously tackled in the great cities of Scotland. both Edinburgh and Glasgow whole streets had been ndemned by the medical officers of health and yet people ent on living in them. While the problem was a difficult ie it was not, he thought, incapable of solution. He would ke to see a town-planning scheme for every area. The uestions of heating and ventilation required more expert tention than they had hitherto received. The smoke oblem also required to be dealt with. He was glad to see at local authorities were now paying attention to the uestion of providing a hollow space in the outer walls of uses. In the medical press lately there had been a scussion about the prevalence of tuberculosis in districts hich were exposed to the prevalent rain-bearing winds. seemed a rather far-fetched idea, but houses were exposed a great deal of rain, especially when there was a strong ind and they were apt to become very damp and remain so r days at a time. There might be a connexion between is dampness and the absence of a hollow space in the iter walls. We were still going on in the same old iscientific and haphazard way of house-building. Until iblic authorities from Parliament downwards took a deeper terest in these questions there would never be a satis-ctory solution of the housing problem, which was responsible ery year for many deaths both of children and adults.

On a division the amendment was defeated by 356 votes 136—Government majority, 220.

WEDNESDAY, DEC. 17TH.

Government and Condemned Houses.

Mr. **STEPHEN** asked the Minister of Health if he proposed introduce legislation for the reduction of rents of pre-war uses and to prevent property owners obtaining rent for uses which had been condemned by the sanitary thorities as unfit for human habitation.—Sir **KINGSLEY OOD** (Parliamentary Secretary to the Ministry of Health) plied : My right hon. friend does not propose to introduce sh legislation for the purposes mentioned by the hon. ember. The efforts of the Government will be directed wards reconditioning repairable houses and expediting e erection of new houses to take the place of those that are yond repair.

Smoke Abatement Legislation.

Sir **HARRY BRITTAIN** asked the Minister of Health whether could hold out any hope for the introduction during the xt session of the Smoke Abatement Bill.—Sir **KINGSLEY OOD** replied : The Government contemplate the intro-ction of a Smoke Abatement Bill as soon as a convenient portunity arises, but I cannot promise that the Bill will introduced before 1926.

Supervision of Maternity Homes.

Mr. **BARNES** asked the Minister of Health whether he had received requests from local authorities asking for powers of supervision over all maternity homes within their area ; and if he would state his intentions in the matter.

Mr. **CECIL WILSON** asked the Minister of Health the number of local authorities to whom powers had been given enabling them to supervise all maternity homes within their area ; and whether such powers would now be extended to all local authorities.—Sir **KINGSLEY WOOD** replied : The answer to the first part of the question is in the affirmative. These powers have been given to eight local authorities. As regards the second part of the question, my right hon. friend hopes to introduce legislation on this subject as soon as other claims render it possible to do so.

Geneva Proposals on the Opium Problem.

Mr. **TREVELYAN THOMSON** asked the Secretary of State for Foreign Affairs whether the Government was prepared to support the proposal in favour of the second conference at Geneva dealing with the opium problem ; and, if so, would he use all his influence to this end in order that a definite step forward might be taken towards the suppression of the opium traffic.—Mr. A. **CHAMBERLAIN** replied : His Majesty's Government are anxious to do everything in their power to suppress the opium traffic, but there are serious practical difficulties of which account has to be taken. The situation created by certain proposals put forward at the Geneva conference is now under consideration.

On Friday, Dec. 19th, Parliament was adjourned until Feb. 10th.

Appointments.

MACCALLAN, A. F., M.D., F.R.C.S., has been appointed Assistant Ophthalmic Surgeon to the Westminster Hospital and Assistant Surgeon to the Royal Eye Hospital.

Surgeons under the Factory and Workshop Acts : **BELL, H. C.**, L.R.C.P. & S. Irel. (Shardlow) ; **GIBSON, J. A.**, M.D., C.M. Edin. (Lancaster).

Vacancies.

For further information refer to the advertisement columns.

Adelaide University.—Marks Lectureship in Applied Physiology and Sheridan Fellowship. £750.

Birkenhead Borough Hospital.—Third H.S. £100.

Birmingham and Midland Eye Hospital.—Res. Surg. O. £150.

Bristol Mental Hospital.—Second Med. Asst. £400.

Cape Town University.—Asst. to Prof. of Bacteriology. £500.

Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—Pathologist (gynæcological). £40.

City of London Mental Hospital, near Dartford, Kent.—Second Asst. M.O. £350.

Eastbourne, Princess Alice Hospital.—Res. H.S. at rate of £175.

Leeds University.—Demonstrator in Dept. of Pathology and Bacteriology. £300.

L.C.C. Mental Hospitals Service.—Junior Asst. M.O. £432.

Liverpool Port Sanitary Authority.—Asst. Port M.O. £700.

London School of Hygiene and Tropical Medicine.—Asst. in Helminthology. £500.

Mount Vernon Hospital for Tuberculosis, &c., Northwood, Middlesex.—Asst. Res. M.O. £200.

North Middlesex Hospital, Edmonton, N.—Res. M.O. £200.

Northumberland, Ashington Hospital.—H.S.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. Dental S.

Royal Army Medical Corps.—Commissions.

St. Mary's Hospital, W.—Med. Supt. £400.

Swansea County Borough.—Asst. M.O. £600.

Swindon Borough Education Com.—Oculist. 2½ guineas per session.

Sydney University, New South Wales.—Professorship of Obstetrics £1100.

Winchester, Royal Hampshire County Hospital.—Hon. Asst. S.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for Greenock District. Applications should reach the Private Secretary, Scottish Office, not later than Jan. 10th, 1925.

Births, Marriages, and Deaths.

BIRTHS.

LIGHTWOOD.—On Dec. 14th, at Cadwgan, Old Colwyn, N.W., the wife of E. Eric Lightwood, M.D.—a daughter.

DEATHS.

COOPER.—On Dec. 18th, at Warminster-road, S. Norwood Park, S.E., Deputy Surgeon-General Clarence Cooper, F.R.C.S., aged 94.

WILLIAMSON.—On Dec. 16th, Herbert Williamson, M.B., B.Ch. Camb., F.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ALASTRIM AND VARIOLA.*

Note Presented to the Committee of the Office Internationa d'Hygiène Publique in its Session of October, 1924,

BY PROF. RICARDO JORGE (LISBON),
DELEGATE FOR PORTUGAL.

THE RASH.—(*Continued from p. 1321*).

Carini strikes a different and somewhat pessimistic note. This San Paulo doctor, who, by the way, is a convinced unicist, states that he has observed intensifications of alastrim; in the village of Rio Claro the case-mortality reached 8 per cent., and in San Paulo it was as high as 14·5 per cent., figures not unlike that of small-pox. This happened in 1912, and so far as I have observed up to the present there has been no repetition of the experience. Mitchell alone contends that alastrim may attain an epidemic intensity ranking with small-pox, but he adduces no observations in support of his statement. One may admit the possibility—and perhaps this is the explanation of the occurrences at San Paulo and elsewhere—of the confusion of cases of true small-pox with those of alastrim. Carini anticipates this objection, but does not succeed in rebutting it. I ought to add that at Haiti in 1920 Brown observed an epidemic in which the infection was imported from Jamaica where alastrim was prevalent at the time; the cases were at first mild, but gradually a severe type developed. Apparently similar observations have been made in the United States. It is, of course, intelligible that small-pox may occur coincidently with alastrim, in which case it would be impossible to be sure which variety of infection one is dealing with in considering the outbreak. Similarly cases of varicella also occur fairly frequently at the same time as alastrim, as has been the case with varicella and small-pox.

The outbreaks of alastrim, however, have in their totality been so numerous that one can assert as their characteristic that, however extensive or prolonged they may be, the infection remains almost constantly mild; notwithstanding continual transmission from person to person during several years no intensification of the virus takes place. Observers are practically unanimous in acknowledging the benignity of the disease in contrast with the malignancy of small-pox.

Differences in Severity, according to Type of Rash.

It was not out of mere anxiety for descriptive detail that the classical writers devoted their attention to the abundance and the conjunction of the cutaneous eruption, distinguishing the discrete, the coherent, and the confluent varieties of small-pox: it was because therein lay the possibility of fortelling the outcome of the attack. For there is in small-pox what does not obtain in other eruptive fevers; the rash is an *index* of the mildness or the malignancy of the case—one may say, in fact, that the prognosis is written on the skin of the patient. Bad is it for him who is covered with vesicles; still more to be pitied is he whose pustules are coherent; death hovers over those whose vesicles become confluent. Those cases only are benign in which the eruption is discrete and sparse, better still those in which the rash aborts before the stage of pustulation, as in varioloid.

Now in alastrim, in which all these peculiarities are also observed, it would be a mistake to rely on these paradigms of prognosis; a profuse suppurating rash is associated with the same mild symptoms as in the case of varioloid. Patients covered with pustules from head to foot show no constitutional disturbance and make an uninterrupted recovery. There may be extensive coalescence of these pustules without affecting the recovery; indeed, true confluence may take place immediately in the vesicular stage. The Paris patient, for example, exhibited confluence of the facial rash. Baujean describes some cases of partial confluence observed recently in Martinique, "the vesicles coalescing to form huge ampoules," he says. Such a picture in ordinary small-pox would signify a most ominous prognosis.

Here, then, is surely a striking contrast between alastrim and small-pox. *The lack of correspondence between the local and the general condition of the patient, the absence of correlation between the outward signs of severity and the uniformly favourable termination of the disease.* On this, certainly the most remarkable feature of alastrim, dispute is no longer possible.

Differences in Severity according to Age, Race, and other Circumstances.

Small-pox, like alastrim, attacks all ages, but whilst the former has a preference for children, the latter is more liable to affect adults; the previous vaccinal condition naturally influences the age distribution of those attacked. In childhood not only is the susceptibility to small-pox greater, but the disease is more virulent. In unvaccinated children the mortality is enormous. A sparsely distributed rash in which the pustules are quite distinct may suffice to cause death, and the younger the child the more likely it is to prove fatal. Now unvaccinated children attacked by alastrim come out of the affair even better than adults. The disease with them takes the abortive form. This aborting of the disease in little children has been emphasised by Ribas. The rash aborts during the stage of vesiculation: he has even seen sucklings fail to get beyond the stage of papules with (at most) a few vesicles.

As with small-pox, no race is immune to alastrim; white and black are alike susceptible. In the Antilles and in Africa the latter are, no doubt, almost the only persons attacked; the infection, however, exhibits approximately the same mild character in the two races. But one is aware of the susceptibility of the African races to small-pox, and its virulence amongst them. This is one more contrast with alastrim. In Martinique in 1888 small-pox had raged with the greatest violence; and those who were present at that catastrophe said, with reference to the recent epidemic "If it is small-pox the blacks will die like flies."

The case to which I have already referred and which was photographed by Ribas, is a living witness of all these points of difference—this coloured woman, 15 days after confinement, completely covered with pustules and suckling her new-born baby, who is also covered with an eruption six days' old. This makes a group which it would have been impossible to pose in front of the camera if the mother and the child had been suffering from small-pox. Their condition would have been one of great danger, and instead of preparing negatives one would have been getting ready their death certificates. The influence of pregnancy was ascertained at Sydney, where of 27 pregnant women who were attacked, six aborted, four were confined prematurely and only one died (Robertson). At Ponta Delgada there were three deaths of pregnant women (report by Jaime Neto). Thus alastrim, like small-pox and so many other infections, affects the development of pregnancy, but as a complication it is much less serious.

To sum up, variola and alastrim resemble one another but they are not identical. Alastrim presents a clinical and epidemiological picture which is differentiated from that of small-pox by its local and general characters and by considerations of ætiology. Its most salient characteristics are the almost invariable recovery of the patient and the lack of correspondence between the severity of the rash and the constitutional disturbance. It has a stamp of its own, a noso-epidemiological type, which everywhere and over many years has been evident to doctors and epidemiologists, and has been realised by a popular intuition which put it in a class apart and gave it a name of its own even before the clinicians knew of it.

IV. IMMUNOLOGICAL AND EXPERIMENTAL CHARACTERISTICS: BIOLOGICAL TESTS.

Biological reactions have been used to establish points of differentiation from, or identification between, alastrim and small-pox.

(*a*) *Vaccination Tests.*

Reciprocal immunity is produced between alastrim and Jennerian vaccine, just as between small-pox and vaccinia although with sensible differences. All the observations made go to show that vaccine protects against para-variola. The individuals attacked are found principally among the non-vaccinated. Thus, at Gloucester 469 out of the 498 cases treated in hospital were not vaccinated. According to a memorandum communicated by Sir George Buchanan the investigations made in England show that, in an outbreak of mild small-pox at Ilkeston, out of 100 vaccinated persons living in the houses affected, 15·5 were attacked, whereas the rate of non-vaccinated persons attacked in the same houses was 44·7 per cent.; at Heanor the same quotients were 7·1 and 28·8.

Mr. Carrière has told us that in the Swiss epidemic there were 3372 non-vaccinated persons out of 3479, or 90 per cent. of the total. He attributes the immunity of the cantons which escaped the recent epidemic to the protection afforded by vaccination; these cantons are precisely the ones in which obligatory vaccination† is strictly practised; the disease was arrested at their frontiers as if confronted with an impassable barrier.

The doctors at San Miguel are convinced that the vaccinated and revaccinated escape alastrim, or, that if they are ttacked, the cases abort; the recently vaccinated or vaccinated usually enjoy complete immunity. In districts here vaccination was more thoroughly practised fewer iccumbed. At Terceira intensive vaccination also served protect a large part of the population. Needless to say iat in the Africo-American epidemics the majority of those ho suffered from alastrim was made up of people who had ever been vaccinated, or whose vaccination dated back iany years or even to infancy; this is the reason of the pparent preference of the disease for natives. At Martinique me very striking examples of this preventive power ere collected. Thus, when some members of a family ere vaccinated and others not, the infection respected the rst and attacked the second. In a ward of a hospital irough which an alastrim patient had passed all the atients, to the number of about 30, had been vaccinated xcept one, and he was the only one to contract the infection. ll observers agree that Jennerian vaccination constitutes n efficacious method of preventing the spread of alastrim.

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* Translated (with slight abridgment and insertion of cross-headings) from the Bulletin of the Office International d'Hygiène Publique, Paris, October, 1924, tome xvi., No. 10.

† In Switzerland this includes obligatory revaccination.—ED. L.

Everything here agrees with the known rules of vaccinal nmunity against small-pox; it should, however, be noted iat persons successfully and recently vaccinated have ntracted alastrim in spite of the fact that the period ad expired which is necessary to establish a condition immunity. Now when small-pox attacks a vaccinated erson, one of the great advantages of vaccination is that ie infection is much slighter, and the eruption may abort often as not. With alastrim, however, it happens com- aratively often that one sees patients with magnificent accinal scars on their arms, but with a profuse rash; l observers have noticed this. Mr. Gouzien has informed that in Martinique five children in one family were tacked by alastrim; three had been vaccinated several ionths earlier; two had not been vaccinated at all, owing their youth, but all were attacked alike; one of the accinated children even had a far heavier rash than his rothers. The Paris patient mentioned had been vaccinated her childhood, and had undergone several revaccinations ith no result before the voyage or while travelling ambassèdès).

Does alastrim reciprocally confer immunity against ow-pox? To a less extent, it would seem, than small-pox, hich itself is a stronger protection against vaccinia than accinia is against small-pox. At Martinique, Baujean oculated with cow-pox 72 convalescents who had never een vaccinated or not vaccinated for many years; the oculation was successful in four cases only, and then not mpletely successsful; it should be remarked that in three these cases the rash had not quite disappeared at the time inoculation. Experiments made by Ribas also helped prove that the immunity produced against vaccinia is either intense nor lasting, for he obtained a positive oculation in the case of a patient who had been con- alescent for 36 days, and seven inoculations were successful the case of a group of 15 individuals who had had astrim six months previously—a percentage of 46. From ght to ten months after the attack of alastrim, Max udolph obtained 27 per cent. positive results of vaccina- on, and Beaurepaire-Aragao obtained vaccinal pustules 11 cases out of 19 who had had the disease less than a ear previously (58 per cent. positive results).

At San Miguel the vaccination of alastrim patients as always negative when performed from one to three onths after the illness. Out of a series of 50, Jaime Neto ad no positive result; a second doctor performed 200 oculations, also with a negative result; others had the me experience. McAllen and Moody conclude that the mild small-pox" immunises, although not very strongly, gainst cow-pox, but that Jennerian vaccination affords great protection against alastrim. Goldsmith and Loughnan not rate this protective power so highly, in view of three ses brought to hospital in Jamaica in 1920, all of them ving been vaccinated, one three years previously, the cond 18 months and the last six months, the former present- g confluence in the gluteal region. The case reported by r. Gouzien would seem to support the same view.

Save for the differences just mentioned, small-pox and astrim may be said to act in a similar way with regard to ie Jennerian reaction. Two things being equal to a third ing are equal to one another, and thus if both diseases t in the same way as regards vaccinia, they must be one id the same infection—this is the argument which the icists deem unanswerable. Now there is nothing to object in the suggestion that the fact of reciprocal immunity irries weight in proving the intimate relationship of the o species, or in using it as evidence of their identity. ut it is most certainly not an incontrovertibly demonstra- ve proof. Vaccinia cannot serve as the crucial test of entification. It is distinct from small-pox, and cannot mistaken for it. The question is one of heterologous imunity. The dispute as to the "unity" or "duality" vaccinia and variola lasted for many years, and within y memory was a burning one. There are still supporters on either side, but just now they appear to be quiescent in their respective strongholds; perhaps alastrim will re-awaken them. If, as so many specialists have affirmed, it is easy to convert the variola virus by passing it through the calf into the condition of "variolo-vaccine," why should not a similar transformation be attempted with alastrim? Beaurepaire-Aragao already had this idea in 1911, and tried to realise it at the Oswaldo Cruz Institute, but the calf inoculation failed. Van Hoof raised the idea afresh last year. These cross-confrontations of alastrim, variola, and vaccinia call for a series of systematic experiments, beginning with the bovine and ascending to the human. Whatever they may show, and even if it is successfully proved that vaccinia and variola are one and the same, they must still remain different from the point of view of their manifestations. So, too, if it is admitted as proved that alastrim and variola are identical as regards their relation to vaccine, their epidemiological differences are not destroyed.

(b) *Paul's Test.*

Experimental Inoculations.—Formerly the routine laboratory test in the case of exanthematic vesicles and pustules was to inoculate their contents into the cornea of the rabbit and examine for the Guarnieri bodies produced there by the small-pox virus; in the case of alastrim the presence or absence of these bodies has been a matter of dispute (Rudolph, Aragao, Carini, &c.). The regulation test at the present day is Paul's reaction; to obtain it the suspected variolous material is inoculated on the scarified cornea of the rabbit; after 48 hours the positive reaction appears in the form of more or less numerous tiny swellings with a punctate depression in their centre which can be made more visible by immersing the excised cornea in corrosive sublimate solution. This reaction is supposed to be pathognomonic of small-pox, being completely absent when the inoculation is made with material from chicken-pox, the various forms of herpes, pemphigus, and purulent dermatitis; in these diseases the only result of the inoculation is a diffuse keratitis.

My assistant, Firmino Pantana, and I have tried Paul's test which has so great a reputation in Germany and Austria in the diagnosis of small-pox; for this purpose we recently obtained from San Miguel (St. Michael in the Azores) a few tubes of alastrim lymph collected from a patient with the greatest care by the sanitary officer, Jaime Neto. The lymph was turbid and yellow with some blood-staining and contained, microscopically, numerous red cells in the case of some of the tubes; in others there was very little blood. The white cells consisted chiefly of lymphocytes, some of them in perfect preservation; the polymorphs were less numerous and were rarely normal in appearance; there were also a few epidermal cells. Direct examination revealed scanty bacteria and culture yielded practically staphylococci alone. Only one of the rabbits employed for the test showed three or four tiny pearls at the end of 48 hours on the scarified cornea; the reaction was thus weak and inconstant.

In Martinique there has been still less success with the test; Baujean got only negative results with 15 different cases. Similarly, at Leopoldville, Van Hoof got only one positive result among numerous corneal inoculations. On the other hand, Read, in San Domingo, obtained positive results, as did Hoffman, who reports 90 to 95 per cent. of successes. In Switzerland Paul's test has been positive in many cases (Carrière). The proof, however, is not conclusive, for, as Baujean has pointed out, a positive Paul's test coincides with a clinical diagnosis of small-pox in only 77 per cent. of the cases according to the German statistics.

Animal Inoculations.

Animal inoculations have been equally unsatisfactory. We tried applying alastrim virus to the shaved and scarified skin of rabbits, but got absolutely no results. Moody and Baujean report the same. Leake and Force, though they got no skin reaction in two rabbits inoculated with the virus of alastrim, found that both the animals were later insusceptible to vaccination. I have already mentioned that Aragao failed to inoculate calves; Moody and Baujean report similar failure. Leake and Force in Jamaica obtained in two monkeys (*Macacus rhesus*) an eruption of papules and vesicles similar to that obtained with small-pox virus in three other monkeys. Baujean got no positive reaction with a monkey of the species called in Brazil *Coaita*. Van Hoof inoculated a monkey (*Cercopithecus*) by scarification with alastrim virus on the thinner skin of the body, the lips, eyelids, the folds of the axilla, and perineum. After the scarifications had healed he injected intravenously 1 c.cm. of the contents of pustules diluted with saline solution; a week later there appeared in the scarified parts a free eruption of typical pustules; in two control animals which received only the intravenous injection this eruption failed to appear. This experiment has some importance. To sum up, animal experiments have produced nothing definite hitherto; the results are confused and contradictory.

(c) *Examination of the Blood Cells.*

It was once hoped that hæmatology would settle the difficulties in the clinical diagnosis of infectious diseases, but experience has shown that this was too optimistic. In small-pox blood examination shows a marked leucocytosis with great increase in the mononuclears and the appearance of myelocytes and nucleated red cells. Sabrazès and Massias have made a complete collection of the reports on the cytology. Baujean (1923), who has done blood counts on several cases of alastrim, has obtained varying results; he has never found nucleated red cells nor myelocytes and, among his 38 cases, he found 14 with a greater or less increase in the mononuclears, while 28 showed no change in the mononuclear count. No definite conclusion can be drawn from these observations.

Hoffman (1923) has put together 300 observations obtained at Havana during an epidemic diagnosed officially as true small-pox, but considered by some to have been the Caribbean alastrim. His conclusion is that in the blood of small-pox patients there is always to be found a very large leucocytosis with very marked excess of lymphocytes and the presence of myelocytes which are invariably absent from normal blood. In chicken-pox the changes in the blood picture are similar, except for the numerical increase in the leucocytes. Hoffman thinks that these investigations, if continued, may solve the question of the identity of alastrim, especially if comparable blood examinations are made in the countries where pure alastrim prevails, and those, such as China and India, where the severest forms of small-pox occur. The complement-fixation test has also failed to give definite results.

(d) *The Allergic Test of Tieche.*

This is the latest application of biological methods. The examination of the allergic reaction of the skin was conceived by Tieche, of Zurich, who took advantage of the Swiss epidemic of 1921–23 to bring it to precision as a means of experimental diagnosis for small-pox.

Skin reactions had already been tried in America; in Leake and Force's conclusions we find, in fact, that rabbits previously inoculated with cow-pox gave positive skin reactions when inoculated by scarification with virulent material from small-pox, alastrim, or vaccinia. Defries and Hanna have also obtained positive reactions with similar sorts of virus by scarifying the abdominal skin of previously vaccinated rabbits.

Tieche's method is quite different; he does not employ laboratory animals for the detection of allergic reaction, but prefers the human subject, in fact, his own body. He had long been making experiments on the von Pirquet reaction. Now it is well known that in small-pox sufferers the allergic reaction produced by the inoculation of their own exudate is weak at the beginning and becomes negative during the period of suppuration. That is to say, the allergic condition is replaced by an anergic state of the skin. Ever since 1907 he had been trying on himself successive inoculations of material from vaccinia and variola the number of these auto-inoculations reaching 3000. The result has been that he has acquired an efficient supersensitiveness of his skin which has finally attained a high degree. The reaction which formerly took 10 to 12 hours to appear now becomes visible in 4 to 5 hours. This incubation period has become a fixed minimum. On the other hand, the intensity of the reaction has diminished. All parts of the skin are equally sensitive for the test, but Tieche prefers as the most convenient the front of the arm. He makes three parallel scratches at a distance of half a centimetre from each other, and notes the time taken for the erythema to become definitely confluent. By means of this procedure he has been able to settle the diagnosis of doubtful cases during an epidemic when atypical forms were abundant, and has been able to distinguish between chicken-pox and pseudo-variola, bullous dermatitis, &c. Out of 515 cases tested he excluded 78 of chicken-pox and 16 of false small-pox. He believes his procedure will give safe results in 98·5 per cent. of cases.

Are we to suppose that this sensitiveness to the variola virus is a property confined to the skin of Mr. Tieche? It appears not, for he has obtained similar results on obliging friends, except that the reactions were less rapid; one person he found to be anergic—his wife.

Mr. Netter, to whom I owe my acquaintance with Tieche's work, suggested to me that I should get him to try the alastrim virus from Ponta Delgada. I have got from Mr. Tieche the results of his test. He has done six experiments on himself, four of which were doubtful, one weakly positive, and one quite typical. On another subject, a young lady of his acquaintance inoculated at the same time as himself, the results were much the same, "but never absolutely typical." On his assistant the reaction was delayed, not appearing till after 19 hours.

V. GENERAL CONSIDERATIONS.

The Characteristics of Alastrim.

From what has been stated above, one is, I think, entitled to infer that alastrim exhibits a "something" peculiar to itself, and which characterises it both clinically and epidemiologically. This special physiognomy may be discerned from a consideration of the descriptions given by various observers of epidemics occurring at different times and at different places. These pictures are, so to speak, prints from the same negative or from superimposed negatives. The common characteristic has forced itself on the attention even of those who would prefer to minimise its importance. Scientific analysis has been able only to define its characters; clinical instinct everywhere recognised that one was dealing with a phenomenon sui generis. The intuition of the public, as we have said before, anticipated that of the professional man, just as happened in the case of the old eruptive fevers which form part of the popular nomenclature of disease. Before Corte and Ribas the savages of Cafrerie and the *sertanejos de Bahia* realised clearly that a new and distinct ailment was attacking them, and they christened it in their own language.

It is impossible to deny these peculiar traits of the disease. Some have laid exceptional emphasis on the differential characteristics, others have deprecated these characteristics, but in their efforts to do so, instead of defacing, have made them all the more noticeable. It has been said that the analogies between the two epidemic varieties now under consideration far outweigh the differences which have been reported. But the more data one collects and the more one discusses the matter, the more impressively do two phenomena emerge. First, the enormous disparity revealed between the local and the general conditions between the profuseness and the confluence of the eruption and the severity of the case; it is the mildness of the symptoms under conditions which, if it were small-pox, would be ample indication of malignancy. Secondly, the persistence of the same morbid facies, as if it were stereotyped, without any appreciable change or variation, right through the epidemics, however long they last, wherever they occur, and whatever the incidence may be.

Of greater infective power than the old-time small-pox and more widespread, the new disease is disseminated in the same manner and with the same train of symptoms. The more it spreads, the more it asserts itself and the more it confirms its own nature—the recent invasion of the Azores is a startling demonstration of this. And this is enough, we believe, to warrant a separate compartment for it, at any rate from the epidemiographic point of view.

I do not see any other lesson to learn from the field of observation. To go further would be to depart from the realm of fact, for, from a scientific point of view, we have as yet no means whereby to solve the problem of the nature of alastrim, in which respect each must form a theory in a way that suits him best.

Alastrim and Small-pox as "Entities."

Generally speaking, one may class the theorists of alastrim into *dualists* and *unicists*, but under each heading one must distinguish rather different grades of opinion. Amongst the dualists are not only those who believe that small-pox and alastrim are of an essentially different nature and are two distinct, although closely related, pathological entities, but also those who distinguish them clinically and epidemiologically without dogmatising on the question of classification. These are, so to say, empiricists who limit themselves to consideration of the facts as they arise, and must not be regarded as dogmatic partisans of an extreme duality theory. I myself have a tendency in this direction. I am inclined to think that when a disease appears epidemically, maintaining its fundamental characters and reproducing itself in the same way, it ought to be classed as a separate morbid entity. Or rather, taking advantage of the locution *als ob* or *as if*, somewhat after the manner adopted in scientific explanation (since Haidinger published his philosophic essay), *things happen as if two separate entities were concerned.*

Differences of opinion are found to no less an extent among the *unicists* who, one must admit, form the largest and most prominent group, especially among the English and Anglo-American authors. Some of them are so conservative that they will not hear of the term alastrim nor its synonyms, regarding them as mere verbalism due to inconsistent and fallacious differentiations. Just as in Mussulman's creed there is *no God but God*, so, they say, there is *no small-pox but small-pox.* Alastrim would then be a variety of small-pox just like any other; but if it were like any other, there would be nothing to dispute about. This conservatism is due in great part to the fear of weakening the anti-small-pox campaign, and this is ıy the official and administrative term "small-pox" is persistently maintained and the use of the term alastrim rbidden. But there is no reason why the same preventive easures should not be applied to alastrim as to small-pox. ıis is a point on which everyone will be agreed.‡ Other unicists," "rendering unto Cæsar the things which are esar's," recognise the epidemiological stamp peculiar to astrim and give it a place by the side of small-pox, but ey look upon it only as a shoot from the parent stem.

Geographical Origin.

In endeavouring to elucidate the question by invoking storic epidemiology some have perceived two variolic rrents—one, the Asiatic, the oldest known, that of the assic authors since Rhazes, whose streams are to be aced back to its original oriental sources; the other, the rican, a newly-proclaimed bastard offshoot whose world igration was not noticed until the end of the nineteenth ıd the beginning of the present century.

The historical and geographical supports of this dichoto- ous classification are not very solid, though we remember e mummy of the Pharaoh which still shows marks of ıall-pox on its skin. Records of the spread of small-pox e only available from the seventh century onward, but dates back to the earliest times in India and China. One n follow its spread across Europe and its arrival in America ıring the sixteenth century. For the so-called African ıriety of our own times proof of its spread from the Cape America is wanting, though Ribas, as already indicated, ntures the assumption that the contagion reached Bahia om South African ports, with which it is in commercial lation. At the present moment we are witnessing its rriage from the Antilles to Europe, though we have not tained any evidence tracing it to the "mild small-pox" England, still less to that of Switzerland.

Persistence of Epidemic Type.

If, according to the doctrine above stated, alastrim is a aft on the variola stem, it represents the result of a kind of utation of virulence which has reduced it and fixed it into abortive form of its ancestral type: *attenuation*, *degenera- n*, or *involution*. The sources of this degeneration have en sought sometimes in vaccination, sometimes in climate, metimes in race—explanations which the most cursory amination of epidemiological fact is sufficient to demolish. e cannot lose sight of the consideration that the two riolas are not interchangeable, that is to say, that idemiologically one does not see alastrim evolving into ıall-pox, or small-pox into alastrim. The two varieties epidemics are independent one from the other, although ey may be mixed together at one and the same time. ıe may add that the severe small-pox at the present day pears less diffusible; the weaker variety, alastrim, being dowed with large powers of spread.

Into this doctrine, which has the largest number of rtisans, an error may creep, precisely because of the term *mild small-pox*" being adopted. Alastrim cannot be taken erally to justify this description; its picture is dif- ent, and its cutaneous manifestation is not the same, ıce it does not reach the development characteristic of riola. In a mild case of true small-pox there is corre- ondence between the local and general condition; not in alastrim. Nor is the parallel with "*varioloid*" any ore exact, for the same reason, and, moreover, for the rther reason that while varioloid exists as a clinical form epidemic of pure varioloid is unknown.

Analogies.

There are some dissimilar diseases which, on the dis- very of their pathogenic cause, blend into a single entity, and there are some similar diseases which by the same process are split into a bundle of distinct components. Thus typhoid fever is dissociated into typhoid proper and the paratyphoids; relapsing fever dissociates into different varieties, each corresponding to its own spirochæte, or even in some cases to its own agent of transmission. These comparisons have been alluded to already, and I may cite the case of yaws, so like syphilis that the identity of the two was placed in the forefront; the *treponema* has now established alike the difference and the resemblance. These diseases with clinical affinity have, as a rule, causative organisms which are very closely affiliated. How para-variola stands in this respect must be left to the future to show. At the moment we can only recognise a variolic family having small-pox in the centre and alastrim on the flank, followed by cow-pox, then zonal varicella, and, in addition, certain epizootic diseases, such as *clavelée* or sheep-pox. This is but a provisional formula until the Gordian knot of the *alastrim question* has been cut.

One thing at least may be considered certain henceforth; alastrim exists, and is an epidemiological reality. To be convinced one has only to see it in progress.

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‡ *Preventive Measures.*—In parenthesis I may observe that it obvious that the principle of compulsory notification should applied as much to alastrim as to small-pox. But in the ıited States, to take one example, it does not appear to me that official practice conforms with the epidemiologic requirements. astrim exists, if not as a proved type, at least as a true epidemic tity. Why, then, exclude it from the list of notifiable infec- ıus diseases and put it under the same heading as small-pox? it because it differs in any way from small-pox from the ministrative point of view? If so, it might perhaps be apler to accommodate to the two points of view by giving designation "variolo-alastrim" official recognition. As gards preventive measures outside the area affected, everything ssible, apart from strict quarantine, should be done. If the easures applied at Ponta-Delgada had been effective, the vasion of alastrim would have been avoided, in the same y as has the importation of variola, in the same port, on veral occasions. Against dissemination within the area, the oral force required to pursue the fight against so feeble an emy is often lacking, and it may be that even sufficient funds not available. This is what happened in the Azores. ıgland and Switzerland know very well what it costs them to rry on their struggle against "mild small-pox" considered as disease to be treated administratively in all respects as small- x, always in the expectation, so far unrealised, of seeing it n into small-pox.

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METROPOLITAN HOSPITAL APPEAL.

THE Lord Mayor of London, President of the hospital, is making a special Christmas appeal for £50,000 to build and equip a suitable home for the nursing staff, who are now housed in old and dilapidated cottages adjacent to the hospital. The hospital was founded in 1836 in Devonshire-square in the City, and in 1886 it was transferred to its present site in Kingsland-road, E. Accidents in this neighbourhood are of such frequent occurrence that the present accommodation for these cases is totally inadequate, and it has been decided to add a new casualty ward and receiving office, which will form part of the new building to be erected.

THE DENTAL SURGEONS' DIRECTORY, 1925.

THE Dental Surgeons' Directory[1] makes its appearance for the first time as a separate issue instead of being incorporated with the Medical Directory. The innovation should be appreciated by members of the dental profession to whom this annual volume is so useful, since the information they require is now contained in a handy volume at a moderate price. The number of qualified dental surgeons on the Register is now 5968; at present they are in a minority of those who are entitled to practise dentistry and whose names appear in the Dental Register, but every year the disparity will become less and the Dental Surgeons' Directory will tend to increase in size. The title of the volume is a timely reminder that only qualified dental practitioners have the right to use the title of dental surgeon or surgeon-dentist. In addition to the names of dental surgeons, the volume includes a list of the examining bodies granting dental qualifications, the various dental hospitals and schools, dental societies and journals. Doubtless, future issues will see some addition to this extra matter. Reference might, for instance, have been made to the museum of the Odontological Section of the Royal Society of Medicine which is housed at the Royal College of Surgeons of England, and the times when it is available for inspection. The inclusion, under the heading of Dental Societies, of the Incorporated Dental Society may mislead, for the volume purports to be a record of qualified dental surgeons only, and this society is the bond of registered but unqualified dental practitioners. Under the heading of the University of London there is no mention of the fact that the M.S. can be taken in dental surgery. It is true that so far no candidate has offered himself for the mastership in this subject.

THE MEDICAL YEAR BOOK, 1925.

THE second annual issue of Mr. C. R. Hewitt's Year Book[2] appears just before the end of the expiring year. The reception of the book has been gratifying, and the editor has rewarded his critics and mentors by availing himself of their suggestions in making the new edition better than the first. Among the important additions to the contents are the following: Post-graduate teaching and facilities in Great Britain, London Poor-law hospitals and infirmaries, list of medical officers of health in the Provinces, Wales, and Scotland, List of Coroners, and the Medical Benevolent Societies. Readers might still be glad of some record of the Red Cross clinics at which baths and other forms of physical treatment can be obtained at a moderate figure. We have no doubt that with these additions the year book will maintain its popularity.

CALENDARS AND DIARIES FOR 1925.

A CONVENIENT block calendar for 1925 has been issued by the Anglo-French Drug Co. (238A, Gray's Inn-road, London, W.C. 1). There is provided for each day throughout the year a sheet of white paper four inches square for written memoranda, and the stiff hinged cover provided preserves the privacy of the notes, and yet by means of a window permits the date to be constantly seen. A certain number are available gratis to medical men on application to the company.

A MEDICAL ART CALENDAR.

A MEDICAL Art Calendar for 1925, published by J. Philip Kruseman (The Hague), contains beautiful reproductions of pictures on medical subjects by Gerard de Lairesse, Michel Marie Charles Verlat, Cornelis Troost, Jan Havickz Steen, David Teniers, the younger, and other masters. The horrors of tooth extraction are depicted, perhaps more frequently than we would choose to see them, but the Monkey Dentist and his pathetic patient huddled in a chair (Verlat) gives the necessary warning as to the dangers of postponing our visit to the dentist until only drastic measures are possible without unduly harrowing us.

THE WELLCOME PHOTOGRAPHIC EXPOSURE CALCULATOR HANDBOOK AND DIARY, 1925.

THIS useful little pocket-book for photographers is now so well known that it needs no description as regards its general format, though the present edition contains some new features. These include a concise description of development with the aid of a desensitiser, a process by which the dark room is practically eliminated—a great convenience to tourists and travellers—in addition to a comprehensive list of comparative speeds of development papers and lantern plates. Valuable notes on the various processes of producing a photograph are given, and the exposure calculator is as usual affixed to the inside of the back cover. By posting one of the pages of the book (the price is now 1*s.* 6*d.*) to Messrs. Burroughs, Wellcome and Co., the purchaser is entitled to free photographic advice and literature during the year.

A CONVENIENT MEDICAL VISITING LIST.

A WELL-MADE, compact pocket book, containing much information as well as adequate space for a journal, obstetric and vaccination engagements and memoranda of various descriptions is the form in which Smith's Medical Visiting List is well known to the profession. The 1925 edition marks the seventy-ninth year of its publication; its popularity is thus well established. The 32 preliminary pages are well and clearly printed, though the type is necessarily small, for in these are contained almanacks, tables of heights, weights, expectation of life by various rates of mortality, tables of expenses and of signs useful to practitioners, metric measures, poisons and their antidotes, to give only a few examples of the mass of valuable information offered. Space is found at the end for lists of drugs and instruments wanted and for lists of things lent, with the addresses of the borrower. The book is published by Messrs. Hazell, Watson and Viney, Ltd., 52, Long Acre, London, W.C. 2.

"THE PLU-VEE SUPER NAIL-BRUSH."

THIS brush is ingeniously arranged so that the bristles are always kept short, and therefore stiff, an obvious advantage where the hands and especially the nails may become grimed. The bristles are surrounded by a framework which can be adjusted so that they can be moved upwards as the extremities wear away. Four adjustments are possible, and it is claimed by the manufacturers, the Page-Coyne Co., Campo-lane, Sheffield, that the brush will outlast five ordinary brushes. The price of the brush is 2*s.* 6*d.* and refills can be obtained for 1*s.* each.

E. R. H.—We have received other complaints of this nerve-racking noise.

Narcosis.—The common difficulties and dangers in giving anæsthetics are dealt with in such standard text-books as those of Boyle, Buxton, Hewitt, and Silk, and especially in a little book with the rather misleading title, "Backwaters of Lethe" (H. K. Lewis and Co.), published by the late Dr. E. A. H. Barton in 1920, in which he pilots would-be anæsthetists over the shoals and rapids of narcosis in a readable and scholarly way.

CORRIGENDA.—In the memoir of Prof. John Hunter, by Prof. G. Elliot Smith, which appeared in THE LANCET of Dec. 20th, the reference to the journal in which the fullest account of Hunter's work is given should be *Surgery, Gynecology and Obstetrics*, and in the third paragraph of the first column on page 1306 the dates should read August, *1921*, and February, *1923*.

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[1] London: J. & A. Churchill. 8*s.* 6*d.*

[2] The Medical Year Book and Classified Directory, 1925. Second annual issue. Edited by Charles R. Hewitt, Librarian and Registrar, League of Red Cross Societies at Geneva. London: William Heinemann (Medical Books), Ltd. Pp. 596. 12*s.* 6*d.*

Special Supplement

TO

THE LANCET

REX v. WALTER ROBERT HADWEN

BEFORE MR. JUSTICE LUSH AND A JURY AT THE GLOUCESTER AUTUMN ASSIZES.

A Synopsis of Contents is given on p. 66.

Monday, October 27th, 1924.

Mr. C. F. VACHELL, K.C., and Mr. ST. JOHN MICKLETHWAIT appeared as Counsel for the Prosecution (instructed by the Director of Public Prosecutions).

Sir EDWARD MARSHALL HALL, K.C., and Mr. A. F. CLEMENTS appeared as Counsel for the Defence (instructed by Messrs. Langley Smith and Sons, Gloucester).

The CLERK OF ASSIZE. Walter Robert Hadwen, you are charged in this Indictment with manslaughter, namely, with unlawfully killing Nellie Christabel Burnham, in the City of Gloucester, on the 10th August in the present year, and you stand charged with the same offence upon the Coroner's inquisition. Are you guilty or not guilty?

The PRISONER. Not guilty.

The Jury were sworn.

The CLERK OF ASSIZE. Members of the Jury, the prisoner at the Bar, Walter Robert Hadwen, is charged in this Indictment with manslaughter, namely, with unlawfully killing Nellie Christabel Burnham, in the City of Gloucester, on the 10th August in the present year, and he stands charged with the same offence upon the Coroner's inquisition. To this Indictment and to this inquisition he has pleaded not guilty, and your duty, therefore, is to inquire whether he be guilty or not guilty and to hearken to the evidence.

OPENING SPEECH FOR THE CROWN.

Mr. VACHELL said: A little girl named Nellie Christabel Burnham died in Gloucester on August 10th last, she then being aged 10 years. She died of diphtheria, and pneumonia which followed upon it. She was attended in that illness by Dr. Hadwen, who stood before the Court charged with manslaughter because the prosecution alleged (and it was for them to prove it) that through his inattention, gross inattention and want of skill or knowledge, or both, he failed to detect the disease from which the child was suffering, and to administer the proper remedy, and that if he had not so grossly failed in his duty as a medical man, in all probability the child would have recovered, and would have been alive now. The Jury would hear from his Lordship what amount of actual negligence rendered a man criminally responsible when death resulted from it.

For his part, Mr. Vachell said, he would content himself by putting before them what he understood to be the law on the subject at the present day, and what it had been for many years, and it was included and covered by these words: "Any person, whether he is a properly qualified medical practitioner or not, who professes to deal with the life or health of others, is bound to have competent skill to perform the task which he holds himself out to perform, and bound to treat his patients with care, attention, and assiduity, and if a patient dies for want thereof he is guilty of manslaughter." In another case it was held that "no one has a right to shorten the life of the human being except by lawful authority, and an acceleration of death by improper medical treatment may be evidence of the criminal offence of manslaughter. There is no discrimination in law between the degrees of most criminal and slightly criminal inattention."

Mr. JUSTICE LUSH (interposing): May I ask you whether in these cases the medical practitioner actually did something and that by some treatment death was accelerated? That is my impression.—Mr. VACHELL: I cannot assist you for the moment, my Lord. I have not the reports. I think we can probably get these in the Law Library here.

It was necessary for him, Mr. Vachell continued, to say something about the disease diphtheria in order that the Jury might be able to follow the evidence on the subject. He proceeded to relate how the disease originated and the various symptoms which the disease set up in the patient. The symptoms, he said, comprised thickness in the speech, a discharge from the nostrils of a yellowish colour, stained with blood, soreness of the throat, and a peculiarly foul breath, and added to that the patient very often became very drowsy. To discover the existence of diphtheria was not for a medical man a very difficult matter, especially if there was membrane in the throat, and any of the symptoms he had mentioned should always tell him that there was a suspicion, at any rate, of the disease. What was perhaps the greatest aid of all in these matters to a medical man, and a procedure which was recognised as being the first step to take in cases that were suspicious of diphtheria, was to procure a swab from the throat of the patient and to have it examined, and then if the diphtheria microbe was discovered when the bacteriologist examined the swab, the discovery, taken in conjunction with the symptoms already described, made it absolutely certain that the patient was suffering from diphtheria. The time was, up to 1896, when diphtheria was looked upon almost as a necessarily fatal disease. The death-rate varied from year to year; sometimes fatal cases would average 30 and 40, and had even reached 60 per cent., amongst those who contracted the disease. Then the discovery was made of what was known as antitoxin, which was a serum injected into the patients with most beneficial results. It was proved now by statistics that the percentage of deaths where antitoxin had been used within the first five days of illness had been reduced to something like 10 per cent., and that where patients had been fortunate enough to receive the treatment on the first day the death-rate was in some years reduced to 3 per cent., and in others actually to nil—every one of the patients recovered. Therefore, there could be no question that this treatment, which was accepted generally by the medical profession, was the proper remedy to apply to the disease, and that it was a remedy which in strong probability would save the patient's life.

This prosecution, Mr. Vachell remarked, is not one brought by any private individual. After the verdict of the Coroner's Jury, which you have heard resulted in a finding against Dr. Hadwen, the papers were placed before the Director of Public Prosecutions, and it is on his behalf that I, with my learned friend, Mr. Clements, am appearing here to-day. The Public Prosecutor, of course, has absolutely no interest at all in this matter, except the hope that justice will be done.

Sir E. MARSHALL HALL. Mr. Vachell has no right to tell this Jury what the Coroner's Jury found.—Mr. VACHELL. The prisoner has been charged upon the Coroner's inquisition.—Mr. JUSTICE LUSH. I don't think any harm has been done.

Mr. VACHELL continued. I was only going to administer a word of caution to you. I expect that you know as much about this case as my learned friend, Sir Edward Marshall Hall, and as much as I do, and I wanted to say that it is the strong desire and hope of the Director of Public Prosecutions and of my learned friend and myself here that you will find your verdict only upon the evidence that you hear now. Of course this case has been discussed throughout the length and breadth of the city, and I have no doubt there have been a great number of things said in the papers about it. I can only hope that none of you have come here with anything like views beforehand, for I am perfectly certain of this: that your plain duty is to base your verdict upon the opinion that you come to, and honestly come to, on the evidence, and leave all other matters that may have been discussed, or that you may have thought of in connexion with this case, entirely outside.

Mr. Vachell then proceeded to review at length the evidence to be called for the prosecution, and commented that Dr. Hadwen in this case never took a swab from the throat of the patient with a view of seeing whether the diphtheria microbe was there or not; yet, he submitted, here was a case of the most highly suspicious character in view of all the surrounding circumstances. There was one happening to which, perhaps, the defence would attach some importance, that was that on one occasion the little girl, while the mother was away from the house, came downstairs to fetch some water. He (counsel) rather gathered that the suggestion would be made that the child then caught pneumonia and that it was pneumonia which caused her death.

Sir E. MARSHALL HALL (interposing). That she caught a chill, which developed into pneumonia.

Mr. VACHELL. My learned friend puts it more correctly, perhaps, but I think it all comes to the same thing. The post-mortem examination, he continued, showed death to be due to diphtheria and pneumonia. If the child did contract pneumonia and died from that independent of anything whatever to do with the diphtheria there was nothing that could be laid to the charge of Dr. Hadwen. But the evidence he was about to call would establish that the pneumonia was of that sort which followed and was a sequel to diphtheria. They knew Dr. Hadwen, concluded counsel, as a gentleman of position in the city, and a justice of the peace. Still, if the evidence satisfied the Jury that he had been grossly negligent, little caring what attention he paid to the case, and that, in consequence of that negligence, the child's life had probably been sacrificed, then, much as they might regret it, it would be their duty to find him guilty.

EVIDENCE FOR THE CROWN.

ANN MARIA BURNHAM, *sworn*.

Examined by Mr. MICKLETHWAIT.

Are you the wife of George Burnham?—Yes.

Is your husband a steel presser?—Yes.

You live at 49, Vauxhall-road, Gloucester?—Yes.

Had you a daughter, Nellie Christabel?—Yes.

Was she ten years of age?—Yes.

And did she live at home?—Yes.

What was her general condition of health?—Very good.

When was she taken ill?—On the 30th July.

What did she complain of?—She complained of headache.

What did you do?—I kept her in bed all day Thursday and she did not seem to get any better; she began to talk very thickly towards night. I sent for the doctor the following morning on the 1st August.

What time did he come?—About half-past ten.

He was your club doctor, I think?—Yes.

What did he do when he came?—He looked down her throat and he looked at her back and chest to see if she had any rash.

How did he look down her throat?—Put his two fingers in her mouth.

Mr. JUSTICE LUSH. Then you say he looked at her back and chest?—Yes, to see if she had any rash, because he said it looked like scarlet fever.

You mean he said that after examining her chest or before?—Before.

Mr. MICKLETHWAIT. When he looked down her throat, where was she?—In bed.

Lying in bed?—Yes.

Did he use any sort of light or anything to enable him to see?—No, nothing at all.

Or did he use any instrument to put her tongue down?—No.

Did he tap her chest?—No.

Did you see whether he felt her pulse?—No.

On this first occasion?—No.

Mr. JUSTICE LUSH. Are you sure he did not or what?—He did not.

Mr. MICKLETHWAIT. Did he prescribe anything?—Medicine. He told me to let her gargle her throat with vinegar and warm water.

Was that all he said or was anything else said?—No, give her medicine; I was to send to the surgery at night for a bottle of medicine.

How long was he there?—About three minutes.

At that time was there anything noticeable about your daughter?—Yes, the smell was very bad and the discharge.

What was the discharge?—Yellow.

Where from?—From the nose.

What smell are you referring to?—Her breath.

Then where was the discharge from, her nose?—Yes.

What was the nature of that?—Yellow, but it was tinged with blood.

Mr. JUSTICE LUSH. Do you say that that yellow discharge tinged with blood occurred while the doctor was there or before he came or after he had been?—Just after she was taken ill on Saturday.

That was on the 30th?—On the next day.

On the 31st?—Yes.

Mr. MICKLETHWAIT. Was it noticeable when the doctor was there or not, the discharge?—Yes, most every time, because she was always sleeping, but if she was awake that was the first thing she would do, feel for her handkerchief.

Mr. JUSTICE LUSH. The question is was that yellow discharge there when he came?—Yes, it was always there when he came.

Mr. MICKLETHWAIT. Did you say anything to the doctor about any of these things you have spoken to us about, did you mention any of them?—He was always there.

No, did you say anything?—Yes, I know I mentioned it.

What did you mention to him?—I told him about Gladys's breath being the same as this little girl's, the same smell.

Mr. JUSTICE LUSH. Her breath?—Yes.

Mr. MICKLETHWAIT. Gladys was another little daughter of yours?—Yes.

You said that Gladys's breath was the same as Nellie's, who was in bed?—Yes.

When did you say that?—I said that on the Monday.

Mr. JUSTICE LUSH. Was Monday the 1st?

Mr. MICKLETHWAIT. No, this was the Friday.

Mr. JUSTICE LUSH. Let us try and keep to the dates.

Mr. MICKLETHWAIT. I am trying to get from you what happened on the Friday. Did you tell him anything on the Friday about any of these things; did you draw his attention to any of them?—I told him it was the same as Leonard, the same smell and all.

The same smell as Leonard?—Yes.

He had been ill before?—Yes.

And Dr. Hadwen had attended him?—Yes.

Mr. JUSTICE LUSH. It is important that we should get the dates right. The first time you saw the doctor was on the 1st August?—Yes, on the Friday.

On that day did you say anything to him about the breath or anything else? If you cannot recollect say so, but you told us just now it was on the Monday you said that.

Mr. MICKLETHWAIT. That is about Gladys?—I told him on the Monday.

Did you say anything to him on the Friday?—I could not say now. Of course, it did not want finding out; it was so strong.

When did you tell him about Leonard?—On the Monday, and I told him about the little girl.

Mr. JUSTICH LUSH. I thought the date Mr. Vachell gave us of the second visit was the 4th August; that would not be a Monday, would it?

Mr. MICKLETHWAIT. Yes, that is Monday. Friday was the 1st. (To the Witness.) You said something about your daughter being drowsy?—Yes.

Was she drowsy on the first occasion when he came?—Yes.

Then he went away and did you get the medicine and the gargle and so on?—Yes.

When did the doctor come again?—On the Wednesday, the 6th.

When did he come after the Friday?—On the Monday.

That is the 4th?—Yes.

What was the state of your daughter then?—She was no better.

What were her symptoms; what was there to see?—Very flushed.

What about her breath?—Her breath was very bad.

And was there any discharge?—Yes.

Of the same kind as before or not?—Yes.

What did the doctor do?—He looked down her throat.

In the same way as before, with his fingers?—Yes, in the same way. He asked if she was going on with the gargle and if she was taking her medicine.

Did you tell him anything then; was she taking her medicine?—I told him she could not gargle very well; she could not gargle so well as the lad.

Did he feel her pulse?—No.

Or take her temperature?—No.

How long did he stay?—It was no longer than the three minutes. I do not know, it was hardly as long that morning.

That is the Monday, the 4th. When did he come next?—On the 6th, Wednesday.

What was her condition then?—She was weaker.

Was the smell the same or was it different?—No, it was a bit stronger.

Was there any discharge?—Yes, it was very bad that day.

Did you notice anything specially about her on that day?—Yes, that was the day I pointed this out in her nostrils.

What did you point out?—It was yellow and it looked exactly like she had in her throat what she had down her nostrils.

Exactly like what?—What was in her throat.

What was that?—To me it looked like sponge.

What colour?—Yellow.

You had seen that in her throat?—Yes.

When did you see it in her throat first?—On the first day the doctor came.

Mr. JUSTICE LUSH. On the first occasion?—Yes.

Mr. MICKLETHWAIT. You say you pointed out to the doctor on this occasion something in her nose, the same sort of yellow stuff?—Yes.

What did you say?—I pointed it out to the doctor and he only said "Oh yes, yes." He did not say I had to do anything for it.

He did not tell you to do anything with it?—No.

Then did the doctor tell you on that occasion what to do?—He asked if she could gargle, and I told him she could not get on with the gargle very well, and he said I was to paint her throat with glycerine with a feather.

That was on the Wednesday?—Yes.

You have told us about this yellow substance; when did it go away?—On the Thursday. It came on the Tuesday and it went gradually by the Thursday.

How did it go?—I used to get the girl to bathe it with a hot rag to her nose.

With anything on it?—Warm water with boracic.

Mr. JUSTICE LUSH. Did you apply the hot rag?—Yes.

Did the doctor tell you to?—No.

Mr. MICKLETHWAIT. Would it not wipe away?—No.

That, you say, took place on the 7th?—On the 6th.

But you took this stuff away on the Thursday?—It gradually got less.

When did you begin wiping it away?—On the Wednesday.

Mr. JUSTICE LUSH. What are the days of the month?

Mr. MICKLETHWAIT. The 6th is the Wednesday, that is when the doctor came and she started putting this on the nose. (To the Witness.) Then you say it went away on the next day, the 7th?—Yes.

Mr. JUSTICE LUSH. Was he there longer on this visit on the 6th?—No, about the same time.

Mr. MICKLETHWAIT. Did your daughter get better or worse?—She gradually got weaker.

When did he come next?—On the Saturday, the 9th.

Did he come of his own accord or did you send for him?—I sent for him, but he said he was coming that day if I had not sent for him.

Mr. JUSTICE LUSH. On the other dates did he come of his own accord or did you send for him?—Yes; I only sent for him the first day he came.

Mr. MICKLETHWAIT. What time did he come?—About the same time in the morning, about half-past ten.

What was your daughter's condition then?—Very weak that morning.

What about the breath?—The breath was very bad. She could not speak. If you spoke to her she could not answer.

Was there a discharge?—Yes.

The same kind of discharge that you have told us about?—Yes.

What did you say to Dr. Hadwen when he came?—I told him the little girl seemed very ill and I thought she had bronchitis. He said, "Probably, these throats sometimes lead to paralysis."

What did he do?—He looked down her throat, felt her pulse, and he sounded her chest.

With an instrument?—Yes.

Mr. JUSTICE LUSH. Did he take her temperature?—No.

Mr. Micklethwait. Did he say anything ?—He said her throat was clearing nicely ; there was scarcely anything the matter with her, she would soon be all right and I was to give her plenty of cold milk.

Did he ever what is called take a swab of the throat ?—No.

Mr. Micklethwait. I asked whether he took a swab at any time.

Mr. Justice Lush. She said no.

Mr. Micklethwait. She said no. What was it he prescribed—I am not sure I caught it—for your daughter to gargle with ?—Vinegar and warm water.

At one of the visits did he also prescribe a tonic ?—Yes.

When was that ?—On the 6th.

Mr. Justice Lush. He had prescribed some medicine on the 1st ?—Yes, a bottle of medicine on the 1st.

Mr. Micklethwait. Then he prescribed the tonic afterwards ?—Yes.

And did you say something at this visit on the 9th about the tonic ?—On the Saturday morning I told the doctor she could not keep it down.

What did he say ?—He said I was to dilute it with a drop of water.

How long was he there on that visit ?—About five minutes.

You say she could not keep down the tonic. When did she first vomit ?—On the Friday. She could not keep anything down on the Friday.

That is the 8th. You have told us about the 9th. Was the breath smelling just as badly ?—Yes.

And the discharge the same ?—Yes.

Was she still drowsy and lying in bed and very weak ?—Yes.

Did Dr. Hadwen say anything to you about being careful to keep her warm ?—No, he did not say anything whatever.

Or to keep her from sitting up ?—No.

At any time ?—No.

Mr. Justice Lush. Did you tell him she had been in bed all these days ?—No. She was always in bed ; she was in bed all the time.

Did she say anything at all as to whether she might get up or stop in bed ?—No.

Nothing ?—Nothing.

Mr. Micklethwait. On the 6th August he told you to paint the throat with glycerine ?—Yes.

Did he give any reason for it do you remember ?—Because I told him she could not gargle very well.

Mr. Justice Lush. Members of the Jury, I need scarcely warn you, but you will not, I am sure, allow anybody to speak to you about this case while it is going on at all.

(*Adjourned for a short time.*)

Mr. Micklethwait. You have told me about the time Dr. Hadwen came on Saturday, the 9th ?—Yes.

After that did you have a consultation with, I think, your brother-in-law, Mr. Fudge, and some other relation ?—Yes.

As a result, was it decided to call in another doctor ?—Yes.

And did Dr. Ellis come in on the evening of the 9th ?—Yes.

What time did he come ?—Just after ten.

What did he do when he came ?—He examined the little girl and took her temperature.

Sir Edward Marshall Hall. I do not think anything that Dr. Ellis said would be evidence-in-chief.

Mr. Justice Lush. No, but what he did would be.

Mr. Micklethwait. I was on what he did. He took her temperature ?—Yes. He took a swab of her throat. He examined her chest and tapped her chest and back.

In what condition was your daughter then ?—Very weak.

Did you think she was likely to recover then or not from what you saw ?—I did not know what to think.

Then I think she got worse and died, was it about ten minutes to one ?—Yes.

Did you wash the little girl's clothes after her death ?—Yes, on the Monday.

Do you remember noticing anything when you did that ?—Yes, in the bottom of the bath.

What was it ?—It was a bit of yellow like I had seen in the child's throat. I knew what it was when I saw it.

Where was this piece of yellow ?—In the water in the bath.

What sort of yellow stuff was it ?—It looked to me like chewed tissue paper.

About how big ?—About 1½ inches I should think in length.

What sort of shape ?—Just curved round a little.

You have told us before that your other children were taken ill ?—Yes.

When was the boy, Leonard, taken ill ?—In July, I forget the dates.

Mr. Justice Lush. What was in July ?—The little boy's illness.

Was that before this child's ?—Yes.

Mr. Micklethwait. Were his symptoms similar to Nellie's or not ?—Yes.

Was there the same smell ?—Yes.

And the same discharge ?—Yes.

And did Dr. Hadwen attend him ?—Yes.

On how many occasions ?—Four.

Mr. Justice Lush. We ought to know, I suppose, whether that was before or during the time this child was ill ?—Just three weeks before.

Did that boy get well ?—Yes, he is better. He is well now.

Sir Edward Marshall Hall. Your Lordship will make a note of his name, Leonard, because I shall have to ask a question about him.

Mr. Micklethwait. Do you say it began three weeks before ?—Yes, just three weeks to the day the little girl died.

Mr. Justice Lush. What I understood you to say to me was that Dr. Hadwen attended this boy three or four times before your little girl was taken ill.—Yes, before Nellie was taken ill.

Mr. Micklethwait. I wanted to know when Leonard's illness began and she said three weeks before Nellie died.—Yes, that is right.

Sir Edward Marshall Hall. I can give your Lordship the dates, the 21st, 22nd, 23rd, 25th, and 28th of July.

Mr. Vachell. Those are the attendances.

Sir Edward Marshall Hall. Yes.

Mr. Vachell. Yes ; it would be the 19th he was taken ill.

Mr. Justice Lush. Did the little boy have similar discharges ?—Yes.

Was he drowsy ?—Yes.

And the doctor treated him successfully ?—Yes.

Mr. Micklethwait. Did you draw the attention of the doctor on any occasion to these symptoms ?—I do not remember, because they were all there so plain I did not think he wanted his attention drawn to them.

Did you say anything about the breath and the discharge ?—Yes, I told him what a nasty smell it was.

Mr. Justice Lush. That is in the boy's case ?—Yes, the little boy, Leonard.

Mr. Micklethwait. Do you say he got better ?—Yes, he got better.

Do you remember anything happening before he got better ?—Yes, he brought up something on the Thursday night. I had been giving him slices of lemon and sugar and he brought up something out of his throat.

Sir Edward Marshall Hall. I do not want to object, but I very much doubt whether this is evidence.

Mr. Justice Lush. I do not know where it may lead us.

Sir Edward Marshall Hall. I have not objected before because I am going to ask questions in cross-examination.

Mr. Justice Lush. We have quite enough to do to attend to this case.

Mr. Micklethwait. Exactly. It is only, of course, material if it is said this is not diphtheria at all.

Sir Edward Marshall Hall. That is not the point. The point is whether Dr. Hadwen thought it was diphtheria or not.

Mr. Micklethwait. You had a daughter named Gladys ?—Yes.

Was she taken ill ?—Yes.

Mr. Justice Lush. When was that ?

Mr. Micklethwait. When was she taken ill ?—In the early part of the week, the same week as Nellie.

Mr. Justice Lush. Before Nellie died ?—Yes, the same week as Nellie was took ill, the early part of the week.

Mr. Micklethwait. And was she sent to the hospital ?—Not till after the little girl died.

Did Dr. Hadwen attend her ?—I took the little girl Gladys to his surgery.

Mr. Justice Lush. The question was, Did Dr. Hadwen attend her ?

Mr. Micklethwait. You mean to Dr. Hadwen's surgery ?—Yes.

Sir Edward Marshall Hall. That was before the girl died ?—On the Tuesday before the other little girl was taken ill, towards the early part of the week. It was the 28th or 29th of July.

Mr. Micklethwait. Were her symptoms similar to these symptoms of Nellie's ?—Yes, only she was not quite as ill as Nellie was.

And after Nellie died, she was taken to the hospital ?—Yes.

Did she play with a little girl called Olive Cornock ?—Yes.

When was she playing about with her ?—She always did come over to the door and play ; she had been playing for a week or two.

They were always playing about together ?—Yes.

Had you another daughter, Hilda ?—Yes.

Was she taken ill ?—Yes.

I think she was not attended by Dr. Hadwen at all ?—No.

When was she taken ill ?—The same day that Nellie died.

That is on the 10th. Were her symptoms similar to those of Nellie ?—Yes.

And was she taken to the hospital ?—Yes, she was taken off on the 11th.

Did you leave your house one evening ?—Yes.

Do you remember which evening it was ?—Yes, on the 7th.

That is the Thursday ?—On the Thursday evening.

How long were you out of the house ?—About ten minutes.

When you went what time was it ?—About 9 o'clock.

9 o'clock in the evening ?—Yes.

When you went away was your little girl Nellie in bed ?—Yes, she was dozing. We had only just come down the stairs ; me and the little boy, Leonard, had been sitting up there all the evening and I had just got her to sleep. I left her in her bed and I come straight down stairs.

And did you leave your little boy, Leonard, in the house ?—Yes, he was down in the kitchen.

Is there any carpet on your stairs ?—Yes.

Is there carpet in the bedroom where she was ?—Yes, on the side of the bed.

Is there a carpet on the stairs ?—Yes.

What was there in the kitchen ?—Linoleum over the floor and a rug.

Then is there a back kitchen with some water in it ?—Yes.

A sink ?—Yes.

What is the floor of the back kitchen ?—Blue tiles, blue bricks.

Had you ever known a case of diphtheria before ?—No.

Cross-examined by Sir Edward Marshall Hall.

You were very fond of this little girl of yours naturally ?—Yes.

And her death was a dreadful grievous blow to you ?—Yes, it was.

Did you ever suspect that your little child was suffering from diphtheria while she was ill ?—No, I cannot say I did, only what a neighbour told me on the Monday and I said the doctor ought to know.

The neighbour told you on the Monday ?—Yes.

Was that the Monday after she died or before ?—Before she died.

Mr. Justice Lush. That is on the 4th ?

Sir Edward Marshall Hall. Yes, the 4th. A neighbour told you on the Monday ?—Yes.

Did you suspect it was diphtheria ?—No, it was the same as the little boy, Leonard, and I thought the doctor ought to know.

Would it be true to say that you thought from the first it was a case of diphtheria because of the stench of the breath ? Would it be true to say this, " I thought from the first it was a case of diphtheria because of the stench of the breath ?"—I do not know as I did say it.

If you did say it, would it be true ?—No, because I never thought it was.

Why did you say it ?—I do not know I did say it.

Mr. Justice Lush. Where is that ?

Sir Edward Marshall Hall. Before the Coroner. (To the Witness.) You were examined before the Coroner on the 12th August while this matter was quite fresh in your mind and I want to call attention to something you did say and things you did not say.

Mr. Vachell. I am sure my friend wants to be quite fair. I think my friend is under a misapprehension. She said, if your Lordship will refer to the depositions——

Sir Edward Marshall Hall. Please do not put this into the witness's mind.

Mr. Vachell. I will refer his Lordship to the depositions.

Sir Edward Marshall Hall. If your Lordship will look at it and not read it aloud. It is right at the very end. (To the Witness.) Did you ever consult Dr. Hadwen about your daughter Hilda at all ?—No.

When you said this before the Magistrates, " I thought from the first it was a case of diphtheria because of the stench, but I did not mention the word diphtheria to Dr. Hadwen or he to me," were you speaking about Nellie's illness then ?—No, I do not remember saying it.

Did you ever consult Dr. Hadwen about Hilda ?—No.

Did you ever consult Dr. Hadwen about anybody except Nellie, Gladys, and Leonard, the three ? Did you say this, " I did not mention the word diphtheria to Dr. Hadwen or he to me. I thought he knew better than I did " ?—Yes, I did say that.

Then you did say that ?—Said them words.

Was that in reference to Nellie's illness ?—Yes, it was.

Why did you say that you had thought from the first it was a case of diphtheria because of the stench in the throat ?

Mr. Vachell. I do not like to interrupt my friend, but would not it be better to put the whole of what she said ?

Mr. Justice Lush. The whole of what she said in that connexion. I thought that was the whole of what she said.

Mr. Vachell. Will your Lordship refer to it ?

Sir Edward Marshall Hall. I will read the paragraph my friend wants me to put which I have dealt with. " I have a child named Hilda, aged 18 years now." Then it goes on, " I thought from the first it was a case of diphtheria because of the stench of the breath." That was never asked about Hilda. The next question was asked about Nellie.

Mr. Justice Lush. I think it must be.

Sir Edward Marshall Hall. I want to know why, just now when I asked you if you had suspected diphtheria, did you say you had never suspected diphtheria till your friend told you on the Monday ?—Because I had never seen a case of diphtheria.

Is it true you did suspect diphtheria or did you not suspect diphtheria ?—I do not think I did or else I should not have let it run on so long.

Then that answer is inaccurate ; I make no more comment about it. Why did you never tell the Coroner, when you gave your evidence before him about two days after the little girl died, that you had seen anything in the child's throat ?—Because I was never asked the question.

Were you asked it before the Magistrates ?—Yes.

What you said before the Magistrates was, "I pointed out that she had a yellow substance coming from her nose. He said, 'Yes, yes,' as though he expected to see it. He did nothing else but look down her throat. I saw the yellow substance in my daughter's throat every time Dr. Hadwen looked down her throat." That is what you said before the Magistrates ?—So I did.

But during the whole of your evidence before the Coroner you never said a word about it ?—I never. I could not think of all of it the first day.

When did you get to know ?—I had time to sit and think after.

When did you get to know that it was very important in connexion with this case whether there was anything of that sort in your child's throat or not ? When did you first know that ?—The first day Dr. Hadwen came I saw it in her throat.

When did you know that it was important, in view of this charge against Dr. Hadwen, to say whether there was this stuff in the throat or not ?

Mr. JUSTICE LUSH. Do you understand the question ?—No, I do not.

Sir EDWARD MARSHALL HALL. Do you understand it ?—No, I do not.

I will come back to it in another way. You sent for Dr. Ellis on the 9th August ?—Yes.

At what time did you send for him, about the time ?—Something between nine and ten at night.

Did Dr. Ellis come at once ?—Yes, he was there just after ten.

Who was it suggested Dr. Ellis's name ?—My brother-in-law.

Mr. Fudge ?—Yes.

Did you know that there had been a very acrimonious dispute in the public press between Dr. Ellis and Dr. Hadwen ?—No, I did not. I did not know anything about that business.

Did you tell Dr. Ellis when he came that Dr. Hadwen had seen the little girl that morning ?—Yes.

Did you suggest that he and Dr. Hadwen should see the child together ?—No.

Had you any intention that Dr. Hadwen should see the child that night ?—No.

Dr. Ellis came and he was there two hours, I understand ?—Yes, a long time I know.

He came about half past ten ; he went away after about an hour, did not he, and then came back again ?—Yes.

And he did an operation on her side just there (indicating) ?—I did not see the operation ; I was not there then.

Did Dr. Ellis tell you that night that he knew Dr. Hadwen ?—No, he did not mention Dr. Hadwen.

Was Dr. Ellis told that Dr. Hadwen had been attending the child ?—Yes.

And did Dr. Ellis tell you that night that this child had died by reason of the neglect of Dr. Hadwen ?—I do not know that he did.

Did Dr. Ellis lead you to believe that if he had attended the child the child would have lived ?—I cannot say he did.

Come ; did he tell you or lead you to believe that the death of that child was due to Dr. Hadwen that night ; I have a reason for asking this question and a very important reason. Did Dr. Ellis, either by word or action, lead you to believe that night that but for Dr. Hadwen your child would have been alive ?—I do not remember.

Mr. JUSTICE LUSH. You must try and think. I suppose Dr. Ellis was told that Dr. Hadwen had attended Nellie ?—Yes.

Sir EDWARD MARSHALL HALL. Did he ask how many times he had been ?—No, I do not think he did.

Did he ask what he had done ?—No, I was not up in the room all the time.

Mr. Fudge was there, was he ?—Yes.

Did not you tell Dr. Ellis what Dr. Hadwen had done and had not ?—Yes, I told him when he came at night what he had said about the little girl, that there was scarcely anything the matter.

You told Dr. Ellis that Dr. Hadwen had said there was scarcely anything the matter with her ?—Yes.

Dr. Ellis realised that the child was dying, did he not ?—Yes.

Were you in the room when Dr. Ellis took a swab ?—Yes.

How long was Dr. Ellis away ?—I could not say ; not long.

Was Dr. Ellis told that the child was dead ?—Yes.

Directly after the child died ?—The next morning, on the Sunday morning.

Do you happen to know whether Dr. Hadwen was ever told that the child was dead ?—I do not know I am sure.

You never told him ?—No.

You left everything to Dr. Ellis ?—I do not know that I left it to anyone. I did not go and tell Dr. Hadwen.

Did Dr. Ellis give a certificate of death ?—No.

Did you ask him for one ? —I did not wish for one.

Mr. JUSTICE LUSH. Why not ?—Because I was not satisfied with the treatment the child had had ; I wanted to see justice was done.

Sir EDWARD MARSHALL HALL. Would it be true to say Dr. Ellis was ready to give a certificate of death ?—Yes.

But you did not wish for one ?—No.

You did not want a certificate of death ; you wanted an inquest ?—Yes.

You wanted an inquest because you thought that Dr. Hadwen was responsible for your child's death ?—Yes, so he was.

That was entirely on your own view ?—Yes, my own view.

Did Dr. Ellis ever ask you whether he should tell Dr. Hadwen that the child was dead ?—I do not know ; I do not think he did.

Do you think it was quite fair not to tell Dr. Hadwen the child was dead ?—Yes.

You knew there was going to be a post mortem on this little child ?—Yes.

In order to find out if possible from what the child had died ?—Yes.

Even as the mother of the child, do you think it would have been fair, having made up your mind, as you have told us, about Dr. Hadwen, that Dr. Hadwen should have an opportunity of being present at the post mortem ?—I do not know I am sure ; I do not understand the doctor's business.

It is quite simple. You had made up your mind that Dr. Hadwen was responsible for your child's death. You would not take a certificate ; you did not want one ; you wanted an inquest and you knew there was going to be an examination. Do not you think it would have been fair that Dr. Hadwen should have been told of it ?—I did not understand about that ; I had more trouble than that to think about.

Let us deal with Leonard. He was taken ill about the 20th July, was he not ?—About that time, I am not sure of the date.

And he had exactly the same sort of throat that Nellie had ?—Yes.

And did Dr. Hadwen come to see him and give him medicine ?—Yes.

And also a gargle of vinegar and hot water ?—Yes.

And later on a tonic ?—Yes.

And he attended him on the 21st, 22nd, and 23rd July and on the 25th and 28th ?—No, he only came four times ; he did not come on the 25th.

You say four anyhow, and I suggest five, but he came four times and when he left on the last visit, was the boy practically well ?—No, he was not ; he was in bed.

Was the throat practically well ?—No, he said it was clear.

Did you ever give the boy any more medicine after the tonic ?—Yes, I took him to Dr. Graham.

Surely the boy got quite well ?—He did not get quite well.

Did not you actually leave the sick girl, Nellie, in charge of Leonard on the night of the 7th ?—Yes.

Leonard was well enough to be looking after Nellie ?—I do not know about looking after her, he was there in the house if she shouted to ask for anything.

I can quite understand your feeling in the matter, but remember we are trying this man on a charge of manslaughter. Do try and be fair. Was not Leonard quite cured by, at any rate, the 1st and 2nd of August ?—No, he was not. I do not know that he is as well now as the other two children who went to the hospital.

Mr. JUSTICE LUSH. Was he still in bed on the 2nd ? The doctor had left off coming by the 1st August ?—Yes.

Was the boy in bed still ?—On the last morning the doctor came he was in bed.

I asked later than that; was he in bed at the beginning of August when Nellie was taken bad ?—No.

Sir EDWARD MARSHALL HALL. When the doctor came to see Nellie on the first occasion, was not Leonard up and about ?—Yes, he told me on the Monday when I fetched the tonic I was to let him out.

Will you please speak a little less fast. We are not complaining, because we all realise your feelings. Will you answer this question : So far as you could judge, were Leonard's symptoms identical with the symptoms of Nellie ?—Yes.

The next thing that happened was before Nellie was taken ill that you took Gladys round to the surgery, did not you ?—Yes.

And did he examine her throat ?—No.

I put it to you that he examined her throat ?—He did not.

And he prescribed for it the same gargle that Leonard had had ?—He did not say anything about a gargle, but the same medicine, and the little girl would not open her mouth for him to look down.

Did she complain ?—She felt sick.

Mr. JUSTICE LUSH. Do you say that Dr. Hadwen did not examine her ?—He did not see into the child's mouth because the child would not open her lips.

Sir EDWARD MARSHALL HALL. Did you tell him that the child had got the same throat that Leonard had ?—I did not know she had the same throat; I told him she talked thickly.

And the same smell ?—Yes, and very flushed.

And did you think she had exactly the same illness as Leonard ?—Yes.

May I take it you told that to the doctor ?—Yes, I told him when I took her.

You told him that Gladys was the same as Leonard, and he prescribed ?—Yes, and a little bottle of medicine.

And did he tell you to use the gargle of vinegar and water ?—No, he did not; he said she would be all right when the fever left her.

That was on the 28th ?—No, on the Tuesday.

Did you ever ask Dr. Hadwen to see that child again ?—No, I told Dr. Hadwen when he came to see Nellie she had the same nasty smell.

Mr. JUSTICE LUSH. Did you ask the doctor to see the child again ?—No; she always ran away when the doctor came; I told him she had the same smell, but he never asked to see her or made any answer.

Sir EDWARD MARSHALL HALL. I understand you to complain that Dr. Hadwen only came on the 1st, the 4th, the 6th, and 9th to see Nellie ?—Yes.

Your complaint is that that was not often enough ? No, it was not.

Do you belong to this Vauxhall Industrial Medical Aid Society ?—Yes.

Did you choose to belong to it yourself ?—Yes.

Instead of going on the panel ?—I thought it was handy, because there was somebody calling for the money.

You pay 2*d.* a week ?—6*d.* a week.

For all of you ?—Yes.

Do you know that the Medical Officer of that Society is Dr. Hadwen ?—Yes.

You knew that when you chose to go on the Club ?—Yes.

You complain that he only came four times. Except for the occasion when you sent for him on the Saturday morning, did you ever send for Dr. Hadwen at all, except the first occasion and on the morning of the 9th ?—I sent for him on the 1st.

On the 1st and the 9th ?—Yes.

Those are the only two times you sent for him ?—Yes.

Is it a rule of the Club that in a case of sudden emergency a patient may send at any time, and will receive attention as early as possible ?—I believe so.

Why, if you thought this child was so ill, did you not send for Dr. Hadwen ?—I thought he would call; he could see how ill the child was when he was there. I should think it was his place to come without being sent for every time.

Do you see the effect of that answer. I suggest to you that Nellie was not so ill until you sent urgently on the Saturday morning ?—She got worse every day; she did not improve at all.

Just follow what happens. On the 1st August you sent for Dr. Hadwen because Nellie was ill, and Dr. Hadwen came. You say he only stayed three minutes; I will deal with that in a minute. He came again on the 4th, and you did not send for him until the morning of Saturday the 9th ?—He came on the 6th.

But you never sent for him on the 7th or the 8th; that is the time you say he neglected ?—Yes.

When did you first know that your little girl had been down in her nightdress and her bare feet into the scullery to get water ?—On the same night.

That was on the 7th ?—Yes.

And it was after that, on the morning of the 8th that you saw the first vomiting ?—Yes.

Sir EDWARD MARSHALL HALL. I hope your Lordship will make a note of that; it is of vital importance in this case. Why, when you found your child vomiting on the morning of the Thursday —— ?—It was not on the Thursday; it was on the Friday.

Why, when you saw your child vomiting on the Friday morning, and knew that she had been down in her bare feet on this tiled floor, did not you send for Dr. Hadwen at once, and say, "There is a different symptom which has arisen" ?—Because I expected him to call.

I put it to you in all seriousness that if you had sent for Dr. Hadwen on the morning of the Friday when the vomiting commenced, you might have saved your child's life ?—He would not have done more than he did for her. He would have had to have done more than ever he had done before.

Mr. JUSTICE LUSH: Is that why you did not send for him ?—Yes, I expected him to call. He could see when I pointed out the nose how ill she was, and no doctor needs sending for after that.

Sir EDWARD MARSHALL HALL. Do you know a man named Tanner ?—Yes, I did.

Is he an honest respectable man as far as you know ?—I do not know; I could not say.

Do you know his wife Agnes ?—Yes.

Do you know them both ?—Yes.

Did you hear Tanner give his evidence before the Coroner ?—Yes.

Sir EDWARD MARSHALL HALL. Let us see what he said.

Mr. VACHELL. One moment; is my learned friend entitled to put this question. To read a deposition of somebody else ?

Sir EDWARD MARSHALL HALL. I am not reading a deposition.

Mr. VACHELL. My learned friend said, "Let us see what he said before the Coroner." My friend may call Tanner if he likes, but he cannot do more, because

Tanner could then be cross-examined if this is relevant. I do not know exactly to what my friend refers, but what I am submitting is that my friend should not read it.

Mr. Justice Lush. I quite appreciate your point. I do not see, Sir Edward, how you can get in the evidence of the witness.

Sir Edward Marshall Hall. I am not attempting to get it in, if my friend would only wait. I am perfectly entitled to cross-examine this lady as to whether she heard something said. I do not put it to her as a deposition.

Mr. Justice Lush. In Court, as a witness ?

Sir Edward Marshall Hall. Yes.

Mr. Justice Lush. Is not that utilising the evidence he gave ?

Sir Edward Marshall Hall. In cross-examination that is permissible.

Mr. Justice Lush. Can you do that ?

Sir Edward Marshall Hall. I have done it, I am afraid, hundreds of times. I cannot conceive that it cannot be put in cross-examination. I am going to suggest that this lady said something to Tanner. I will found it in that way.

Mr. Justice Lush. If you put it in that way, it is not open to any objection.

Mr. Vachell. Your Lordship sees what it leads to ?

Sir Edward Marshall Hall. Really ; my learned friend is appearing for the Crown in this case.

Mr. Vachell. If my learned friend is right, without putting any witness into the box at all who can be cross-examined before this Jury, he can say to a witness : " Were you present at the inquest ?—(A.) Yes. (Q.) Did you hear the witnesses examined on behalf of the Defendant ?—(A.) Yes. (Q.) Did they say this ? "

Mr. Justice Lush. I have already said that I do not think that can be done, but I understood that Sir Edward was going to put to the witness : " Is not it the fact that you said so and so to Tanner ? " or " Tanner said so and so to you ? " I cannot possibly prevent that.

Mr. Vachell. That I could not object to, but that, I think, is hardly what my friend proposes to do.

Mr. Justice Lush. That is what I understood.

Mr. Vachell. Then whether it was said at the inquest or not is immaterial ?

Mr. Justice Lush. Quite.

Sir Edward Marshall Hall. I would like to remind my friend that this is not a civil action in a nisi prius Court ; this is a Crown prosecution. (To the Witness.) Do you know George Henry Tanner ?—Yes.

Does he live at 44, Vauxhall-road, and is he a painter and paper-hanger ?—Yes.

Did you see him on the 6th August ?—No, I did not.

Did you tell him this on the 6th August : " The doctor has been this morning, and the child is much better " ?—No, I did not see Mr. Tanner.

Did you see him on the night the child had been to the scullery ?—No, I did not.

Did you see them the following night ?—No.

Did you have a conversation with them about the child having gone to the scullery for water ?—She asked me that a week or two after. She sent for something to be cut out. I knew that they were asked by certain friends that were going there. I knew what was going on ; I knew they were trying to get evidence. It was the night she sent for me to cut her little boy's shirt out. I know ; I have had some friends invite me to tea and something else.

Your suggestion is that Tanner and his wife set a trap for you ?—Yes, they did.

Trap or no trap, did you tell them that the little girl had got out of bed whilst you were away, had gone downstairs and gone to the scullery for water ?—Yes. She asked me and I said Yes.

And did Mrs. Tanner say to you : " Was not that enough to give the child its death of cold ? "—No, she did not ; she is not one of that sort. She is too false to say it to your face.

Did you say it was a bad sign ?—Yes, I did.

Mr. Justice Lush. What is a bad sign ?

Sir Edward Marshall Hall. The child having been sick the next day ?—I have heard a lot say they do that when they are taken for death.

Did Mrs. Tanner ask you if you had ever told Dr. Hadwen about this child going downstairs ?—No, she did not.

You said that neither to her nor to her husband ?

Mr. Justice Lush. Will you ask whether she told Dr. Hadwen on the 9th that the child had been down ?—Never.

Why did not you mention it then ?—I did not think of it then ; I was more troubled over the little girl.

Sir Edward Marshall Hall. Is that the real reason why you did not tell the doctor ?—It did not come in my mind while he was there.

Did you tell Mr. Tanner that you had not told the doctor because it was your own business ?—No, I did not.

If you had thought the sickness was a bad sign, and you knew that the child had been down in the scullery in her bare feet, why did you not tell the doctor ?—I do not know ; we do not think of everything just at the right time.

I must put to you some details of these visits which you are talking about. On the first visit to Nellie, that is to say, on the 1st August, did you tell the doctor : " The child has had a bad throat like the others " ?—No, he looked down the child's throat.

Did the doctor look at the child's throat ?—Yes, he did.

Did he say : " This looks rather like scarlatina " ?—No, he did not say anything about a scarlatina throat. He said she looked as if she had scarlet fever.

Then did he at once examine the child to see if there was any rash ?—Yes.

And he found no rash ?—No rash.

Had the child at that time a slight running at the nose ?—Yes.

Did you see him feel its pulse ?—No.

Do you know when a doctor feels a child's pulse ?—Yes.

Do not you know that the way to do it is not to let the child know you are feeling its pulse if you can possibly avoid it ?—I was in the room ; I saw all he did.

You swear that Dr. Hadwen did not take her temperature ?—He did not.

Did he take her temperature ?—No.

Did he examine her chest, back and front ?—The first day ?

I am talking of the first day ?—Yes, to see if she had a rash.

Then he told you to let her gargle her throat frequently with vinegar and water ; that is the same as he had done for Leonard ?—Yes.

Did he tell you to send to the surgery for some medicine, and you sent, and did you get it ?—Yes.

He came again on the 4th ?—Yes.

I suggest to you he found the child very much better ?—He did not.

That the throat was in a very much better condition ?—It was not.

And did you see him put his head down like that to the child's back, and listen ?—He did not near touch the child's back ; the child was laid down in bed.

Did he listen at the child's back ?—He did not.

Did he take the child's pulse ?—No.

That means you did not see him ?—I was in the room ; I was sitting on a chair at the side of the bed, and I should not have missed it.

Did he tell you he was pleased with the child's progress ?—No, he did not.

Did he tell you to keep up the gargle and the mixture ?—Yes. I told him that morning she could not do it so well as Leonard.

Did you say : " She has some difficulty in gargling," because she could not get the gargle back far enough ?—Yes.

Then did he tell you that you had better paint the throat with glycerine with a feather ?—That is on the 6th.

You say that that is all done in less than three minutes ?—Yes.

The next time he came was on the 6th ?

Mr. JUSTICE LUSH. That was on the 6th ?—About the throat.

Sir EDWARD MARSHALL HALL. Did you meet him at the bottom of the stairs ?—No ; I followed him up the stairs. He came in from the front, and I came in from the back.

Did you say—be careful—" Doctor, I think she is going on very nicely " ?—No, I did not. A neighbour stood at the back door, and I said, " I cannot stop, I want to show the doctor that in Nellie's nose."

I put it to you that on the 6th the child was ever so much better ?—She was not.

She had no temperature ?—She was laid down in bed, and the discharge was all over the side of her face that morning.

I suggest to you she was sitting up ?—She was not sitting up any morning nor any time anyone came into the house.

That the symptoms of the cold had cleared up, and so much so that he ordered a tonic for her ?—Yes, he ordered a tonic. He found her dozing that morning.

He ordered a tonic for her ?—I know he did.

He did not order a tonic for Leonard until he was nearly well ?—He ordered a tonic in a week's time.

And this is about a week's time ?—He did not find her sitting up in bed, nor did anyone see her sitting up in bed who came in the room. The discharge was all down the side of her face that morning. That was the morning I pointed out that part on her nose.

I suggest to you that you addressed Dr. Hadwen on that morning kindly, and were very pleased with him for having looked after her ?—I was not. He said as he went downstairs, just as though he was a bit excited, " She is getting on all right." He repeated the words twice. I never repeated the words to him nor said she was better.

On the Friday the child vomited ?—Yes.

Vomited more than once ?—Yes.

You never sent for the doctor ?—Not till the morning.

But never on the Friday ?—No.

Was it quite early in the morning the child vomited on the Friday ?—Yes, just after breakfast.

How many times did she vomit that morning ?—I could not say ; several times in the day.

Did you notice when she vomited that she was shivering ?—No.

Did you feel her hands at all ?—No, she was cold the beginning of the week.

On the morning she was vomiting, did you notice whether she had any perspiration on her forehead ?—No.

Or her hands ?—No.

How many times did she vomit in the morning ? Five or six ?—Not so often.

Three or four ?—About twice in the morning.

Mr. JUSTICE LUSH. Did not the doctor ask you, when he got there, how the child had been since he last saw her ?—No, he did not. I pointed out how ill the child was.

If you pointed that out, why on earth did not you mention these attacks of sickness ?—I did mention it.

Going downstairs ?—I did mention them ; I said, " She cannot keep the tonic down," and he said I was to dilute it with water. He did not point anything out to me about the child's illness.

Sir EDWARD MARSHALL HALL. I put it to you that until the doctor came on the Saturday morning you had never sent word to the doctor to say that the child was vomiting ?—No.

When the doctor came on the Saturday morning, did you tell him that the child had been vomiting all day Friday ?—Yes, I did tell him.

But that it had now stopped ?—Yes ; she had not brought anything up all through the evening and all night ?

Can you really give the Jury any explanation why, as a mother, fond of the child, with this new serious symptom, which you yourself say is a bad sign, you did not send for the doctor on the Friday ?—Because I thought he would call in. He had seen her on the Wednesday.

His time was half-past ten ?—I could not spare the children to be running after doctors. I had not one to spare. Leonard was not fit to go for him.

At half-past ten his time had passed and the child was vomiting, why did not you send then for him ? Which was the most important, that your child should be sent to the doctor's, or that your other child, who was ill, should get worse ?—I did not think it was so serious as that, or I should have sent for him.

Do you really suggest that Dr. Hadwen said that there was nothing the matter with the child ?—Yes, he did say it, and repeated the words twice : " There is scarcely anything the matter with her."

I put it to you that what he said was that the throat had cleared up nicely ?—It was clearing nicely ; " there is scarcely anything the matter ; she will soon be all right," and he repeated the words twice.

Did he examine the child then, very carefully ?—He felt her pulse, and he just examined her chest ; that is all he did that morning.

You have no doubt whatever that the child was very ill ?—Yes, she was ill, and I pointed out how ill she was.

When he said to you that the throat was clearing up nicely, did he say, " I think the child will pull through all right " ?—No, he did not. He said, " There is scarcely anything the matter " ; those are the words.

The child was always able to breathe through one lung ; she could breathe ; perhaps you do not know ?—No ; she could not talk for days, anyhow ; she did not want to talk at least.

Then you sent for Dr. Ellis, and Dr. Ellis came at once ?—Yes.

You did not see him do this operation ?—No.

Did you hear Dr. Ellis mention the word pleurisy ?—No, fluid.

Did you hear Dr. Ellis say anything about the condition of her lungs, or bronchitis ?—Yes, I did.

What did he say about bronchitis ?—She had bronchitis.

Acute bronchitis ?—I cannot remember " acute."

Dr. Ellis said bronchitis ?—Yes, and pneumonia. I was up in the room when he was tapping her with his fingers, not when he put the needle in.

Can you tell me about how long Dr. Ellis was there before he went away after he first came ?—I cannot say I can say exactly the time.

You say he was there about two hours altogether ?—Yes.

A long time ; you had never had a doctor there so long ?—He had to go home once.

How long was he away, ten minutes ?—I should think ten minutes to a quarter of an hour.

We know he came at half past 10, the poor girl died at 10 minutes to 1, and he was away 10 minutes, so he would be there about two hours. What was he doing all those two hours ?—He washed all his instruments before he went ; all he had used.

Did you leave word after the inquest that Dr. Ellis, if he came, was not to come to your house, but to your mother's ?—No, I did not leave word about Dr. Ellis ; I did not know he would come. I asked a neighbour if anyone came to say I would be at my mother's.

You know that Dr. Ellis did call at your house, and was sent on by the neighbours to your mother's ?—So the neighbours told me ; I did not know.

It was not Dr. Ellis only you did not want to call ?—I did not think of Dr. Ellis. I did not know he was calling. I did not know he would call. I only asked a neighbour, if anybody should come, to say I should be up home.

And Dr. Ellis had nothing to do with your desire to have an inquest ?—Nothing at all.

He wanted to give a certificate ?—Yes.

Which, of course, would have ended the matter ?—No.

Which would have ended the matter ?—Yes.

And you insisted on an inquest, and in that you acted entirely independently of Dr. Ellis ?—Yes.

Had you ever consulted Dr. Ellis before ?—No.

Had Mr. Fudge ?—Yes.

Was he Mr. Fudge's doctor ?—Yes.

Re-examined by Mr. VACHELL.

Was this the first time, this Saturday the 9th, you had seen Dr. Ellis to speak to ?—Yes.

Did he at that interview show any ill-feeling at all towards Dr. Hadwen ?—No, none whatever.

Did he say anything about Dr. Hadwen's treatment of the child ?—No.

And he examined her most thoroughly ?—Yes.

Did Dr. Ellis leave the house before the child died ?—Yes.

And when did you see him next ? — On the Monday.

What took place then. Was that when you told him that the child had died ?—No, my brother-in-law.

What did you go for ?—He called to tell me that he had proof that it was diphtheria.

How many times did you see him after that before the inquest ?—Only once.

Mr. JUSTICE LUSH. What was the date of the inquest ?

Sir EDWARD MARSHALL HALL. The 12th August at first. Then it was adjourned to another date.

Mr. VACHELL. About a month after.

Mr. JUSTICE LUSH. When did this witness give her evidence ?

Sir EDWARD MARSHALL HALL. On the 12th August.

Mr. VACHELL. On the first day. She was the first witness called.

Sir EDWARD MARSHALL HALL. There is one point I have omitted. (To the Witness.) At the inquest you never said a word about having found this piece of chewed tissue paper ?—No, I did not.

Mr. JUSTICE LUSH. Nor about the discharge from the throat.

Sir EDWARD MARSHALL HALL. No, nothing at all.

Mr. VACHELL. That is just what I was going to ask you. Were you the first witness called at the inquest ?—Yes, I believe so.

Before any doctors were called ?—Yes.

When did you first realise that there might be some importance about what you found in the bath ?—When I heard the doctors giving their evidence, I knowed what it was.

Up to that time, until the doctors had given their evidence, had you any idea that this that you found in the bath might have anything to do with your child's illness ?—Yes. I did know what it was when I saw it first.

When ?—When I saw it in the bath.

Mr. JUSTICE LUSH. What did you know ?—Because I had seen it in the child's throat.

What did you know when you saw it in the bath ?—I noticed what was in the child's throat.

Did you know it was important ?—I did not think it was important then.

Mr. VACHELL. When you gave your evidence, did you tell your story without any assistance from the Coroner, or were questions put to you by anybody ?—Without any assistance.

You told your story right away ?—Yes.

You made no mention then, apparently, about what you saw in the child's throat. How is that ?—I did not know it mattered all that. I did not think of everything.

Did you realise at that time what effect this that you saw in the throat had. Did you know of the importance of it ?—Not till I heard the doctors talk about it.

Besides yourself, what other people called and saw your child during her illness ?—Mrs. Peachey and two sisters.

What are their names ?—Mrs. Taylor, Mrs. Hotchkins, and Mr. Fudge.

Did they all see this child ?—Yes. When she was ill.

Did this discharge that you noticed from the nostrils, and, by the way, I think you said it was stained with blood ?—Yes.

Did that make its appearance before Dr. Hadwen saw the child on the 1st ?—Yes, right from the very first day she was took ill.

Was it to be seen on that day ?—Yes.

Did it ever cease or get better ?—No, it never ceased at all.

Was it to be seen, then, on each occasion when he called ?—Yes.

With regard to the offensive smell, what do you say about that ?—When did you first perceive it ?—From the very beginning as soon as she was took ill.

And was there any alteration in that during the illness ?—The smell got stronger.

At any time when Dr. Hadwen was there was the smell any better, or anything of that sort ?—No, it was no better ; it did not get any better at all.

Did you get any disinfectant at any time ?—Yes, only what a neighbour gave me. She gave me some on the Tuesday and that is what I was going to fetch the night the little girl came down.

You had gone for that on the 7th ?—Yes.

Mr. JUSTICE LUSH. When was the disinfectant brought ?—On the Tuesday.

Mr. VACHELL. Monday was the 4th. Had you asked the neighbour for this disinfectant ?—No, I told her what a smell it was.

So you went to fetch it, did you ?—Yes.

Apparently some weeks after the child died you had an interview with this lady, Mrs. Tanner ?—Yes.

And on that occasion you said something was a bad sign ; what was that ?—When the little girl walked downstairs I told her I thought it was a bad sign.

Mr. JUSTICE LUSH. I thought you said before that the vomiting, the sickness, was a bad sign ?—No, the coming downstairs was bad.

In what way ?—Because I have heard of so many getting out of bed and doing those sort of things two days before they have died.

You mean it was a bad thing to do. I thought you meant the vomiting was a bad sign after she had walked downstairs ?—No, I have heard of a lot of people like that.

You mean it is a bad thing to do ?—No, it is a bad sign.

Mr. VACHELL. Have you ever heard anything about it being bad for people to get up when they are ill and walk downstairs ?—Yes, I have heard most people say it was a sign of death.

A superstition ?—Yes.

Sir EDWARD MARSHALL HALL. May I put something about the dates ? Your Lordship asked me about the dates. The inquest was opened on the 12th August. This lady gave evidence, and Dr. Ellis gave evidence only. Then it was adjourned until the 14th August, when no evidence was taken, and it was formally adjourned until the 12th September, when this lady was again recalled and cross-examined on that occasion, and she said nothing about the patch and her evidence had been read over to her on the 12th, and nothing was said.

Mr. JUSTICE LUSH. I should like to know this ; I do not know whether you have asked it : When Nellie was taken ill, what did you understand had been the matter with Leonard ?—The doctor said it was an ulcerated throat.

And Dr. Hadwen's treatment of Leonard was successful ; the little boy got better ?—He got better, but he did not get well. I have had to take him to the doctor's since. He looked like a boy who had St. Vitus's dance.

But his throat got better ?—Yes, but the people did not know him, he got so changed.

You thought Nellie had the same illness that Leonard had ?—Yes.

Did the doctor treat the two children in the same way ?—Just exactly the same, the same medicine and all.

LEONARD BURNHAM, *sworn.*

Examined by MR. MICKLETHWAIT.

MR. JUSTICE LUSH. Was this witness examined before the Magistrates ?

MR. MICKLETHWAIT. No, my Lord.

MR. JUSTICE LUSH. You have given notice ?

MR. MICKLETHWAIT. Yes, we have. (To the Witness.) Are you 14 years old ?—Yes.

Do you remember when your little sister was ill ?—Yes.

During that week ?—Yes.

Did your mother go out one night ?—Yes.

Do you remember which day it was ?—I think it was Friday.

SIR EDWARD MARSHALL HALL. You can lead as to the date ; it was Thursday, the 7th.

MR. MICKLETHWAIT. Were you left in the house with Nellie ?—Yes.

Where were you when your mother was out, were you downstairs or upstairs ?—Upstairs.

Did Nellie come downstairs while you were in the house ?—Yes.

Tell us what you remember about it ?—She came downstairs and came in the kitchen where I was sitting by the fire and she went out to the back kitchen and got a cup.

MR. JUSTICE LUSH. What did she ask you for ?—Some water.

Was she in her nightdress ?—Yes.

MR. MICKLETHWAIT. Then what did she do ?—Walked out to the back kitchen.

Is the water out there ; is the sink there ?—There is a tap.

MR. JUSTICE LUSH. She did ?

MR. MICKLETHWAIT. She walked out to the tap ?—Yes.

Did she get some water ?—No, I had the cup and I turned on the tap and gave her some water.

Then did she drink it ?—Yes.

Then what happened ?—She went on upstairs and got into bed.

How long was it while she was down there ?—About two minutes.

Cross-examined by SIR EDWARD MARSHALL HALL.

Did you tell your mother when she came back ?—Yes.

SARAH JANE PEACHEY, *sworn.*

Examined by MR. MICKLETHWAIT.

Are you the wife of William Peachey and is he a butcher ?—Yes.

And do you live at 47, Vauxhall-road ?—Yes.

I think you are a neighbour of Mrs. Burnham's ?—Yes.

But no relation ?—No relation.

Did you know this little girl, Nellie ?—Yes.

Did you know her all her life ?—I knew her ever since she has been born.

What was her general health ?—I never remember her being ill but once, when she had measles and bronchitis.

How long ago was that ?—Four years ago.

Did you see her in her last illness ?—Yes.

Which day ?—On Monday, 4th August, was the first time I saw her.

What time did you see her ?—About ten o'clock in the morning.

Where was she ?—In bed.

Did you notice anything about her ?—There was a terrible smell, and a yellow discharge stained with blood.

From her ?—From her nose, and it was running right down her cheek.

That was at 10 o'clock in the morning when you saw her ?—Yes, in the morning.

Had you had any experience of diphtheria yourself before ?—Yes.

You had known a case ?—Yes.

And did you form an opinion as to what was the matter with her ?—Yes, I told her I thought it was diphtheria.

Did you say anything about what you thought to anybody ?—I told her I thought it was diphtheria.

I think you told us that you noticed the smell ?—Yes.

On this occasion ?—Yes.

Are those the things which you noticed or did you notice anything else about her ?—They were the two chief things I went by.

Did you see her again after that before she died ?—I saw her on Saturday, the 9th.

At what time ?—2 o'clock in the afternoon.

What was her condition then ?—She was very weak indeed. I asked her if she knew me, and I could just see by the motion of her mouth she did know me, but you could hear no sound.

Was she conscious ?—Yes, quite conscious.

MR. JUSTICE LUSH. That would be about four hours after Dr. Hadwen had seen her.

SIR EDWARD MARSHALL HALL. Yes, 4½ hours.

MR. MICKLETHWAIT. What was the condition, first of all, with regard to the smell ?—The smell was worse than it was on Monday and her nose was completely blocked.

You mean the discharge ?—The discharge was still running from it.

Where was she when you saw her ?—In bed.

You say you tried to speak to her ?—I spoke to her and said, " Do you know me ? " and I could see by the motion of her mouth she said " Mrs. Peachey," but you could hear no sound.

Cross-examined by SIR EDWARD MARSHALL HALL.

You thought she was very bad when you saw her on the 4th ?—Yes, I did.

And you had known her since she was born ?—Yes.

You thought she had got diphtheria ?—I did.

And you told her mother so ?—Yes.

Did you ask the mother whether the doctor thought it was diphtheria ?—No, I did not ask her.

Did you ask the mother ? Did the mother agree with you when you said it was diphtheria ?—She said she had never seen a case.

Did she agree ?—She said she did not ; she thought it was the same as Leonard and he had got better.

Did you tell her she ought to tell the doctor ?—No, I did not.

Did you go and see Nellie again between the 4th and the 9th ?—No.

To-day you have said she had a yellow discharge stained with blood running right down her cheek ?—Yes.

Have you had a talk over this since you gave your evidence before ?—No.

That is not the expression you used before ?—It may not be, but it is the truth. She had a very bad discharge from her nose and mouth which smelt very badly. It was green and red from the nostrils, but more watery from the mouth. I have seen a diphtheria case before.

You have not said that before till to-day ?—I may not have said it, but it was there.

It is curious that Mrs. Burnham's evidence was that she had a yellow discharge streaked with blood ?—It was there to be seen.

You described it one way to-day, but you mean the same thing ?—I mean the same thing.

You never said until to-day that the poor girl's nose was completely blocked ?—No, I may not, but it was completely blocked all the time.

You have given evidence twice before ?—Yes, I have.

Once before the Coroner and once before the Magistrates ?—Yes.

And on neither occasion did you say anything about the nose being blocked. You did ask Mrs. Burnham how she was getting on between the 4th and the 9th ?—I asked her every day and sometimes twice.

And you were satisfied or else you would have said so ?—I was never in the habit of going in unless I was asked.

Had you been asked to go on the 4th ?—I was.

On the 9th ?—I was.

If Mrs. Burnham had told you that the child was worse between the 4th and the 9th, would not you have offered to go and do something ?—Yes, if she had asked me.

Mr. JUSTICE LUSH. Did you ask how the child was ?—Every day and sometimes three times a day.

What answer did you get ?—That she was no better.

Re-examined by Mr. VACHELL.

Before the Coroner you put it this way: "The discharge seemed to be like blood and matter mixed" ?—Yes.

Is that correct ?—That is quite correct.

FLORENCE HOTCHKINS, *sworn.*

Examined by Mr. MICKLETHWAIT.

Are you the wife of Frederick Charles Hotchkins ?—Yes.

You reside with him at 22, Russell-street, Gloucester ?—Yes.

I think he is a storekeeper ?—Yes.

Was Nellie Burnham your niece ?—Yes.

Did you see her during her last illness ?—Yes.

On how many occasions ?—Three times.

Which was the first time ?—August 5th.

Where did you see her ?—In the bedroom.

What was her condition; what did you notice about her when you saw her ?—She was very hot and feverish but very ill, drowsy. She had a discharge from the nose.

What sort of discharge ?—I said a greenish colour when I gave my evidence, stained with blood.

Did you speak to her ?—Yes.

Did she answer you back ?—No.

How long were you with her on this first occasion ?—Half an hour.

And during that time did she not speak to you ?—No, not once.

Was there any smell there, did you notice ?—Yes.

What sort of smell ?—Nasty, disagreeable smell coming from the breath.

Then did you see her on another occasion. When was that ?—On August 8th.

What time of the day ?—I was there from half-past eight at night till half-past nine.

That night ?—Yes.

What was her condition then ?—She was very ill—much worse; very pale.

Was there any discharge ?—The same.

Was there any smell ?—Just the same.

You mentioned she was drowsy on the first occasion; what about the next occasion ?—The same; she was sleeping the whole of the time.

Mr. JUSTICE LUSH. Need you pursue this in quite so much detail. Of course, I appreciate the importance of proving the main symptoms, but it is enough, is not it, to get those one or two main facts from this and other witnesses ?

Mr. MICKLETHWAIT. Of course, drowsiness is important, I think.

Mr. JUSTICE LUSH. No doubt.

Mr. MICKLETHWAIT. What was the third occasion when you saw her ?—The night she died.

Just before her death was it ?—Yes, about a quarter past twelve.

Did anything happen before she died ?—Yes, she tried to speak and we could not understand anything she said.

Did she do anything besides that ?—Yes, she tried to vomit.

How long was that before she died ?—About a quarter of an hour.

Could you say whether she was conscious before she died ?—Yes, she was.

Right up to the time of her death ?—Yes.

Cross-examined by Sir EDWARD MARSHALL HALL.

Am I right in surmising that you are Mrs. Burnham's sister ?—Yes, I am.

Were you one of the family council who decided to send for Dr. Ellis ?—No.

Who were ?—My mother, my father, my brother, and Mr. Fudge.

Mr. Fudge ?—I do not know whether it was Mr. Fudge.

You were not one of the party ?—No, I was not home.

ALBERT AUSTIN FUDGE, *sworn.*

Examined by Mr. MICKLETHWAIT.

Do you live at 54, Barry-road, Saltley, Birmingham, and are you a foreman fitter ?—Yes.

And Nellie Burnham was your niece ?—Yes.

Did you see her during her last illness ?—I first saw her on the 7th August.

At what time ?—About 10 o'clock.

In the morning or evening ?—The morning.

What was her condition then ?—I thought she was very ill.

Was she in bed ?—Yes.

Did she recognise or talk to you when you saw her ?—She tried to speak but she could not. She tried to say something, but what it was I could not say; a kind of snuffle.

Did you notice anything about her appearance ?—She had this greenish discharge from her nose and tinted with blood.

You say that you noticed that ?—Yes.

Did you notice the smell ?—Yes, very bad indeed.

Did you see her again on another occasion, I think you said twice ?—On the Saturday.

That was the day before she died ?—Yes.

What time did you see her ?—Between nine and ten as near as I can say.

At night ?—Yes.

Was that when the decision was come to to call in Dr. Ellis ?—Yes.

It was after that ?—Yes.

And as the result of a discussion you had with other people, did you telephone to Dr. Hadwen ?—Yes.

At what time ?—This would be about—I cannot say to the minute—half-past nine I should think, something like that.

Will you tell us what you said to him ?—I rung on the 'phone and I asked if that was Dr. Hadwen. He said "Yes," and I told him I was speaking on behalf of Mrs. Burnham for Nellie Burnham and I was not at all satisfied with his treatment and that we had decided to call in another doctor. He said, "Oh, oh. I have done my best," and I said to him, "You understand we are going to call in another doctor." He said, "Yes, oh," and then rang off.

Cross-examined by Sir EDWARD MARSHALL HALL.

Are you a brother of Mrs. Burnham's ?—Brother-in-law.

Did you marry her sister ?—Yes.

I suppose you were on your holidays ?—Yes.

And you saw Nellie twice ?—Twice.

Did you know she had been ill all the week ? When did your holidays begin ?—On the Monday.

Do you remember Mrs. Burnham telling you, when you went to see her the first time, that the child had been sick ?—No.

Do you know whether she had been sick ?—No.

What day of the week was it you went to see her the first time ?—The 7th would be the Thursday.

You worked it back in your mind. I noticed you said you went on the 7th and then on the Sunday; you did not say the 9th. I am suggesting to you it was the 8th you went ?—No, the Thursday.

You went two days running; you are sure it was the 7th ?—The Thursday and the Saturday.

You attended the family council ?—Yes.

Who was there; you and Mrs. Burnham ?—Yes.

And Mrs. Burnham's father and mother ?—No.

She told us so just now. Who was at the family council ?—Myself, Mrs. Hotchkins, Mrs. Taylor, and Mr. Taylor; there were several members.

I suggest what he did say was, "I have done my best, I am very sorry, it is a free country, you can call in who you like"?—No, nothing like that.

You say he said what you have told us?—Yes.

Of course, you were a little bit angry?—I was not angry.

Mr. JUSTICE LUSH. Had you come to any conclusion as to what the child was suffering from?—No.

MATILDA TAYLOR, *sworn.*

Examined by Mr. MICKLETHWAIT.

Are you the wife of Ernest Taylor, an electrical fitter of 32, Ladysmith-road, Gloucester?—Yes.

Was Nellie your niece?—Yes.

Did you see her during her last illness?—On August 9th.

The day before she died?—Yes.

What time did you see her?—About half-past nine.

In the morning or evening?—In the morning.

What was her condition then?—She was very ill.

Did you notice anything about her?—Yes, she had a discharge from the nose greenish and blood, and a very offensive smell in her breath.

Were you present when Dr. Hadwen called?—Yes.

Were those symptoms you have told us of apparent at the time he called?—Yes.

What was her condition so far as drowsiness was concerned?—She was sleeping.

Was she sleeping in her bed when you saw her?—Yes.

Did you see what Dr. Hadwen did?—Yes.

What did he do when he called?—He sounded the chest and felt her pulse and looked down her throat.

Mr. JUSTICE LUSH. How did he look down her throat?—Put his two fingers in her mouth.

Mr. MICKLETHWAIT. Did he say anything about her condition?—He said there was scarcely anything the matter with her, she would soon be all right.

Did he say anything about the condition of her throat?—He said the throat was clearing nicely.

Did you hear him say anything about what the mother should give her?—Cold milk.

What did the mother say to that?—She could scarcely take it, swallow the milk.

Did she say anything about her not being able to take her medicine?—Yes, she said the child could not keep the medicine down.

What did the doctor say to that?—She was to give it with a little water.

How long did the visit last?—I left about eleven.

Dr. Hadwen's visit?—About five minutes.

Were you present when she died?—Yes.

Did anything happen just before?—She tried to vomit a quarter of an hour before she died. I could see something in the child's mouth, I raised her head and a little slipped from her mouth.

Mr. JUSTICE LUSH. I do not quite know what you mean?—There was something in the child's mouth and I raised her head, thinking she would be able to bring it up.

Mr. MICKLETHWAIT. Did you see what it was?—It was a small piece of like slimy, yellowish skin streaked with blood.

That came from her mouth?—Yes.

Was that before she died?—A quarter of an hour.

Cross-examined by Sir EDWARD MARSHALL HALL.

Are you a sister of Mrs. Burnham's?—Yes.

Have you told the truth?—Yes.

Let me read to you what you have said: "I saw she was trying to vomit; I could see something in the child's mouth, and something slipped from her mouth, a small piece like a slimy, yellowish skin, streaked with blood." Have you ever said that before to anybody?—Yes.

Who to?—To the last sitting.

I have your evidence before the Coroner, and before the Magistrates, and I suggest to you you never said anything of the kind?—I did.

I will read you what you said on both occasions, first of all taking the Coroner's Inquest: "I was with the child after Dr. Ellis left, and when she died she tried to vomit, about a quarter of an hour before she died, but she did not bring anything up." Before the Magistrates you said this: "I was present when Nellie died, and a quarter of an hour before she died she tried to vomit, and a little came from her mouth when I lifted her head"?—I did say it.

Do you mean to say "a little came from her mouth" is the same as what you have said to-day?—Yes.

"A little came from her mouth" means a little liquid came from her mouth, does not it. Were you cross-examined before the Magistrates by Mr. Clements and were you asked why you had said nothing about it before, and did you say this: "I did not say anything before the Coroner as to anything coming from the mouth; I have only paid attention to it since the various doctors' evidence." Do you mean to tell these Jurymen that you saw "a small piece like slimy, yellowish skin streaked with blood slip from her mouth"?—Yes.

Do you mean to tell the Jury that is true?—Yes.

Then why did not you tell the Coroner?—How did I know what it was?

Why did not you tell the Magistrates?—I did.

You did not; you told them something came from her mouth, a little?—I did not know what it was.

Do you mean to say when you said, "A little came from her mouth," you meant a piece of slimy stuff of this sort, streaked with blood?—I was not asked that question.

You were not asked to-day. You are a sister of Mrs. Burnham's?—I am.

And you, after the doctors' evidence, like her, appreciated the importance of whether anything had come solid from her mouth, did not you?—Certainly.

Have you given the exact words you have given in evidence here to-day to anyone representing the Public Prosecutor; have you told those exact words to anybody?—I do not remember.

Have you made a statement?—I have.

Did that statement include those words?—It did.

Mr. JUSTICE LUSH. Why do you say that?—At the Court, the last time we were there.

That is not quite what you are asked now. You have given a statement as to what you are going to say in this Court, have not you, to the solicitors?—No, I have not.

Sir EDWARD MARSHALL HALL. You gave a statement to the Public Prosecutor before the Magistrates' proceedings?—Before the inquest.

Did you give a statement before the inquest?—I did.

Sir EDWARD MARSHALL HALL. The Public Prosecutor did not come into the matter till after the verdict of the Coroner's Jury.

Mr. VACHELL. We have what the Treasury always supply, the Coroner's Depositions, and the Magistrates' Depositions; there is no separate proof.

Sir EDWARD MARSHALL HALL. (To the Witness.) I want you to realise the importance of this: "Something slipped from her mouth, a small piece, like a slimy, yellowish skin, streaked with blood." Did you tell the gentlemen who took your evidence down those exact words?—No, I did not.

Therefore you never said it before the Magistrates, or before the Coroner, and you did not tell the Solicitors to whom you gave your statement, and you have said it now. Do you say he put two fingers down the child's throat?—Yes, I believe he did.

You have sworn it to-day; you told my Lord he put two fingers down?—Yes.

Do you swear that is true?—Yes.

Do you mean to say you really tell the Jury the doctor put two fingers down the throat in order to see?—Yes, he has put them down my children's throat, so I know what he does.

Before the Magistrates you said one finger?—No, I did not.

I have got it here : " He put his finger in Nellie's mouth " ; that is before the Coroner. You did say two fingers ?—Yes, I did say two fingers.

Was it one, or two fingers ?—It was two fingers.

And that is true ?—Yes.

Would not the effect of putting two fingers down the throat be to absolutely obscure the throat ; you could not see it at all——. I will let the Jury see your gesture ; that is quite enough for me.

DR. EDGAR SEVERN ELLIS, *sworn.*

Examined by Mr. Vachell.

Are you a Member of the Royal College of Surgeons, and a Licentiate of the Royal College of Physicians, England ?—Yes.

Practising in Gloucester ?—Yes.

How long have you practised here ?—Since 1906.

Were you at some time on the night of Saturday, the 9th of August last, called by telephone ?—No, personally.

You were called upon to attend this little child, Nellie Burnham ?—Yes, personally, not by telephone.

What time did you arrive at the house where she was ?—I cannot say, but I should say about half-past ten.

What did you find there ?—I found the little child seriously ill ; she had got a temperature of 102·5, and a pulse of 154.

What is the normal , everyone knows the temperature, that is 98·4, is not it ?—Yes.

And she was—— ?—102·5.

What is the normal pulse of a child of her age, about ?—They vary a lot ; an adult's pulse would be about 70 to 80, but children are higher.

Her pulse was ?—154.

Mr. Justice Lush. That is exceptionally high ? —Yes, febrile.

Mr. Vachell. Was she in bed ?—Yes.

What was her condition ?—Toxæmic.

You must put it into English for us all ; that is something to do with poison ?—It means it was by an absorption of poisons in the blood ; like people in the later stage of fever.

Was she at all approaching death ?—Yes.

Mr. Justice Lush. How long was this before her death ?—She died at 12.40, I believe.

Mr. Vachell. That is to say, on the Sunday morning, within two or three hours after you were first called in ?—Yes.

Tell us what you did, and what symptoms you observed ; perhaps the symptoms first ?—As I came into the room—I had been told it was probably a case of pneumonia—I noticed her very rapid breathing, and I at once thought of pneumonia, and I went over the lungs. I found the right lung solid, and the left lung bronchitic. I looked at the throat, and it was full of membrane, membrane right across from tonsil to tonsil.

In the throat ?—Yes, and there was a discharge from one nostril, I forget which. I took a swab.

What was the nature of the discharge ?—A greeny, dirty discharge, just tinged with blood. I took a swab from the throat, not from the nose, and then I wondered whether, possibly, there might not be fluid in the lung, because it is very difficult indeed to distinguish between solid lung and fluid ; I thought it would be wise to make an exploration, so I went home and fetched some instruments, and I did an exploration. I found no fluid.

Is that something in the nature of a syringe ?—Yes.

With a sharp point ?—Yes.

You punctured the side ?—Yes, I have got it here, if you wish it in evidence.

How did you examine the throat ?—I had been warned it was a throat case, and I had brought an electric tongue depressor with a lamp at the end which I put inside.

Mr. Justice Lush. Is that the usual way ?—No, it is too big for a doctor to carry it with him, but he would take it with him if he were going to a serious case. In the ordinary way I use a pocket torch like *that* (*indicating*).

Mr. Vachell. Or do you want anything much better than a spoon for a depressor ?—In the ordinary way, if I am out, and I am asked to look at a throat, I borrow a spoon, and shine my torch in. If I have a special case, or a difficult child, and I am warned about it, I bring my special apparatus with me.

Did you notice anything offensive in the way of smell ?—Yes.

What was that ?—All throats smell, but I cannot distinguish one from the other.

There was some smell ?—Yes, undoubtedly.

What, in your opinion, was the child suffering from ?—Diphtheria and pneumonia.

Mr. Justice Lush. Had you any doubt that it was diphtheria ?—None whatever.

What was it that proved it to you, because you had not had the swab examined, of course ?—I was so certain that I notified it before I had any result from the swab.

What was it that made you clear it was diphtheria ? —It was such obvious diphtheritic membrane.

Mr. Vachell. Is diphtheria accompanied sometimes by an enlargement of these glands ; I think you call them maxillary ?—No, cervical glands.

That is one of the symptoms, or one of the accompaniments ?—Yes.

Did you discover any enlargement ?—Yes, but it was not very marked.

How long were you there altogether ?—I cannot tell. I got there about half-past ten, then I had to examine the lungs and the throat, then I had to go home and fetch my apparatus, and go back again. I should think about an hour and a half each time, and about an hour getting my apparatus.

Having formed your opinion as to what the child was suffering from, did you administer antitoxin ?—No.

Why ?—Too late ; the child was dying.

You took a swab. When did you send the notification to the proper officer ?—Early the next morning, I think.

There is some Act, is there not, under which certain diseases are what you call notifiable diseases ?—Yes.

You are bound to give notice ?—Yes.

You gave notice the next morning, and when did you send the swab ?—The next morning too, I think.

Did you send them both to the same officer ?—No, the notification goes to the Guildhall, and the swab goes to Dr. Washbourn.

Is he appointed by the authority to examine, bacteriological examiner ?—Yes.

Mr. Justice Lush. Did I understand you to say that you notified it as a case of diphtheria on the morning of the 10th, and you received the swab on the morning of the 11th ?—I do not know when I received the notification.

I thought you notified it ?

Mr. Vachell. Of course he took the swab in the lifetime of the child, and the next day, the Sunday, the 10th, the child died early. He did two things. He notified the authorities at the Guildhall, and he sent the swab to Dr. Washbourn.

Mr. Justice Lush. I thought he had got back the result ?—I did not wait for the result.

Mr. Vachell. You do not know quite how long it was before you got the report back ?—I do not know.

I do not know if your sense of smell is affected at all, or whether it is normal ?—I think it is fairly good, but it is not good enough to spot diphtheria ; I admit I cannot. It is only some who can, with special practice.

Did you take some other swabs in that family later ?—No.

None at all ?—Not in the family ; there was a child who had been visiting there.

Is that a little girl called Olive Cornock ?—Yes.

Sir Edward Marshall Hall. I cannot see how this is evidence.

Mr. Justice Lush. It is a little remote, is not it ?

Mr. Vachell. It is only this, if it is going to be said that this little girl, Nellie, never had diphtheria at all, then I think the fact that her playmates, and the little children of her own family all suffered at the same time from this diphtheria would be evidence, but, of course, I am in your Lordship's hands; that is the reason.

Mr. Justice Lush. It strikes me as a little weak compared with the strong affirmative evidence which you have presented.

Mr. Vachell. Yes, my Lord. Of course, I do not know yet how far my learned friend is going.

Mr. Justice Lush. I do not think myself it carries the case appreciably further.

Mr. Vachell. If your Lordship pleases; then I say nothing more about that.

Mr. Justice Lush. We shall have to pursue that if you begin it because we must know if it is true that Olive Cornock suffered the disease as well.

Mr. Vachell. That is simply dealt with because I am calling the medical officer from the Isolation Hospital.

Mr. Justice Lush. If you press it, and you are going to deal with it we must take it.

Sir Edward Marshall Hall. From the notice my friend has given us he does not prove the identity of the swabs.

Mr. Justice Lush. If Sir Edward is going to challenge the accuracy of the diagnosis about diphtheria—I do not know if you are.

Sir Edward Marshall Hall. From my view of the case it is not really important. I must say this, that I am not going to admit on behalf of Dr. Hadwen that the child was suffering from diphtheria because Dr. Hadwen says in his opinion the child was not suffering from diphtheria, and he will say so.

Mr. Justice Lush. If you are going to make it an issue at all, that the child had diphtheria and died from it, I do not think I can shut the evidence out, although I think we have got enough.

Mr. Vachell. I shall take that intimation from your Lordship, and if there is enough I am content.

Mr. Justice Lush. You see Dr. Ellis notified it before he had ever got the result.

Sir Edward Marshall Hall. I am not going to question Dr. Ellis's diagnosis that he thought this was diphtheria. He cannot do more than say it was diphtheria in his opinion, but I am not going to admit in this court, or any other, that the finding of a Klebs-Loeffler bacillus is absolutely indicative of diphtheria. If I am bound to challenge that I shall go on challenging it. That is one point I am trying to avoid in this case.

Cross-examined by Sir Edward Marshall Hall.

You diagnosed a solidified right lung, did you not ?—I did.

The left lung apparently reasonably clear ?—No, acute bronchitis.

Dr. Washbourn, as a matter of fact, did not agree with you upon that diagnosis; he said there was some congestion ?—Yes.

Have you any doubt whatever that that child actually died of pneumonia ?—Yes, the child died of diphtheria and pneumonia.

How did the diphtheria kill her ?—The diphtheria spreading down into the lung. It was really all one disease.

Do you mean to say that the solidification of the lung was the direct consequence of diphtheria ?—I cannot swear to that; that is only my opinion.

Mr. Justice Lush. What do you say yes to then ?—It is my opinion that it was one disease, that the diphtheria had spread down into the lung and caused pneumonia, but I cannot say for certain that it was pneumonia caused by diphtheria.

You know it was pneumonia ?—Yes.

Sir Edward Marshall Hall. The pneumonia in this case was called unilateral, was it not ?—Yes.

Dr. Washbourn is a gentleman we can all rely upon ?—Yes.

The pneumonia was unilateral ?—Quite so.

Have you ever known a case of pneumonia, a sequela of diphtheria, in which the pneumonia has been unilateral ?—No, or bilateral.

Mr. Justice Lush. Must it not be one or the other ?—I have not come across a case before.

What am I to understand by that ?—These cases go to hospital; we do not get them in general practice.

Sir Edward Marshall Hall. Do you study current medical literature ?—Yes.

Mr. Justice Lush. Is this what I am to understand, that you do not know of a case where the pneumonia is a sequela of the diphtheria, and you do not know whether it may be unilateral or bilateral ?—No, it is a question for pathologists.

Sir Edward Marshall Hall. Will you give me the same answer when I ask this: Have you ever heard of lobular pneumonia and lobar pneumonia ?—Yes.

You know the distinction between the two ?—Yes.

Is one of those unilateral and one bilateral ?—No.

Which was this ?—This was unilateral.

Which was this, lobar or lobular ?—I cannot tell. When I auscultated that chest it was so late; the whole lung was solid.

Do you know Dr. Washbourn said at first it was lobar, and it was not until he was recalled some months after that he said he might have been mistaken; it might have been lobular ?—I understood that, and in my own consulting room I did not know how he had made the distinction.

Do you know that hepatisation is peculiar to one of those two forms ?—No, peculiar to either.

Do you suggest you can ever get the hepatisation in lobular pneumonia ?—They go solid if the thing is sufficiently advanced.

You gentlemen use wonderful words and expressions, but you do attach some meaning to them, do not you ?—I hope so.

Mr. Justice Lush. I am afraid I do not know enough about them. One is lobular; what is the other ?—Lobar.

Do you say you could not tell which this was ?—I was not asked. I was not at the post mortem.

But if you had been and found the lung was solid ?—I am not satisfied as to which it was.

Sir Edward Marshall Hall. You are even now not satisfied ?—No.

Do you really mean to pose before this Court as a gentleman who does not know; that you have no experience; you cannot say what the common sequela of diphtheritic pneumonia is ?—I know perfectly well.

But you have never had a case where there has been a post mortem after diphtheria and pneumonia and pneumonia supervened, have you ?—Never.

Then it is not very common for it to intervene ?—It happens in hospital possibly.

Let us try another subject. Do you know that a sudden chill will in the case of an enfeebled vitality produce pneumonia ?—Yes.

Do you know that if pneumonia is produced in that way that the pneumonia, which is the sequela, is lobular and not lobar ?—I do not. I know it usually is.

Mr. Justice Lush. Let us have that again.

Sir Edward Marshall Hall. I put that question the wrong way round on purpose, and he accepted it. Now I will put it the right way round. Is not it a fact that the pneumonia which is the sequela of a chill is always lobar pneumonia and not lobular ?—Yes, I thought you said that, as a rule.

Mr. Justice Lush. As a rule, pneumonia caused by chill is lobar ?

Sir Edward Marshall Hall. Is one of the first symptoms of a pneumonia onset as the result of chill, vomiting. Is that one of the first symptoms you get ?—No, not necessarily at all.

But is it sometimes ?—Yes.

Does pneumonia of that kind strike you down in a second ?—No.

Not if it supervenes on a weakened vitality ?—If it is sufficiently weakened, yes.

If a child is feverish, and one of the lay witnesses has told us the child was very hot and feverish all the time, and that child goes downstairs in her bare feet and nightgown, out of a hot bed where she has been kept for days, and goes into a scullery and gets a drink of cold water, and gets back to bed, do not you think that is most likely to produce a serious chill ?—It may, certainly.

If it produces chill in the condition which we know that child to have been in, a diphtheritic condition, would not pneumonia very probably supervene ?—It might.

And if pneumonia did supervene that pneumonia would in all probability be lobar ?—Yes.

Mr. Justice Lush. And would it be followed by vomiting ?

Sir Edward Marshall Hall. And one of the first symptoms might be—he only goes as far as that—vomiting. If Dr. Washbourn is right when he says this was lobar pneumonia—assuming he has said it, and assuming he is right—do you then think it is more probable that that pneumonia was a sequela of diphtheria, or the consequence of the chill contracted on the 7th ?—As a sequela.

You think it was even then more probable even as lobar pneumonia ?—Yes.

Although you frankly admit you have never known of a case of lobar following diphtheria ?—Or lobular ; I have never known of either.

Mr. Justice Lush. I do not follow that quite. If it was quite reasonable of the child going down with her bare feet into the kitchen to get water, and if it was a reasonable consequence she should get pneumonia, and if it was lobar pneumonia she got which was in fact followed by vomiting, would not you think it more probable that it was the consequence of the chill than that it was the sequela of diphtheria ? Is not that the question ?

Sir Edward Marshall Hall. Yes, exactly.—I do not think so, for two reasons. First of all there was sufficient diphtheritic membrane in the throat and nasal discharge to explain why her lung should have been affected. It is not uncommon for lobar pneumonia to follow diphtheria, but it is not the usual thing, and it is rather an extraordinary coincidence, to say the least, that the membrane was found in the right lung, and it was the right lung which was pneumonic.

Mr. Justice Lush. The membrane was found in the right lung ?—The bronchus. The membrane was found going down to the right lung, and it was the right lung which was affected. Another thing was the question of dates, and the period of incubation of lobar pneumonia following a chill such as Counsel suggests is at least, I should say, 24 hours.

Sir Edward Marshall Hall. I did not suggest 24 hours.—No, I am suggesting that ; at least 24 hours. Then there is evidence that the lung had been hepatised for a certain time. The lung had been congested for so many days.

Do not let us confuse the Judge. Dr. Washbourn has said the pneumonia was two or three days' existent when he examined it ?—Yes. Allowing 24 hours for incubation the dates just fit. It is rather a tight fit, but they do fit.

So they do for the date of the chill. I was going to make an important point of that ?—I am admitting your point.

Mr. Justice Lush. They fit the chill exactly. She went down ; on the 7th she vomited, and showed the symptoms on the 8th, that is the 24 hours you mentioned, and two days afterwards the pneumonia is so developed that it is solid ?—Precisely ; it is a tight fit, but it fits ; that is my point.

Sir Edward Marshall Hall. Will you disabuse your mind for a moment of the fact that Dr. Hadwen was the doctor in this case ?—Certainly.

You were told on this Saturday night that the people were dissatisfied with their existing medical man ?—Yes.

That, by the etiquette of the profession, frees you from responsibility ; it entitles you to see the patient without consulting the doctor ?—No.

Mr. Justice Lush. What do you say No to ?

Sir Edward Marshall Hall. The etiquette of the profession does not free him from the necessity of informing the other doctor he has been called in. I suggested it did when they said they were dissatisfied, but he tells me it does not. If it had been any other doctor but Dr. Hadwen would you not have at once communicated with the doctor ?—No.

Why not ?—There was no point in doing so. They said they did not want Dr. Hadwen again.

That is what I have put to you. If they said to you they did not want Dr. Hadwen, that relieved you of the necessity of communicating with Dr. Hadwen ?—No, not until he had been communicated with himself.

But not by you ; as long as they communicated ?—Quite so.

Unless they had said that they did not want the doctor who had attended them again the etiquette compels you, does it not, to inform the doctor that you are going to see the case ?—One simply does not know until they have informed the doctor.

Either they or you ?—Yes.

You went and saw this case ?—Yes.

Were you told that Dr. Hadwen had diagnosed it as an ulcerated throat ?—I think I was, but I will not be certain.

Who told you it was probably a case of diphtheria ?—Mr. Fudge, when he came.

Mr. Justice Lush. Who told you it had been diagnosed as an ulcerated throat ?—I am not sure whether anybody did ; I cannot remember ; it is three months ago.

I thought you said somebody did ?—I think somebody did, but I am not certain.

When did you hear anybody suggest that diphtheria had been suggested as the illness ?—Certainly somebody did. Mr. Fudge, and a friend of his, I think, came with him : one or the other suggested it.

Sir Edward Marshall Hall. Did they tell you any words to this effect, that Dr. Hadwen had muddled up the case—I do not give you exact words, but was that the effect of what they told you ?—That was the suggestion.

The child died. You were informed of it early on the Sunday morning ?—Yes, of the death.

How far from you does Dr. Hadwen live ?—About a third of a mile.

Are you on the telephone ?—Yes.

Is he on the telephone ?—Yes.

Did you think it courteous to telephone him to tell him that a patient of his, whom you had been called in to see, had died ?—I did not.

Did you think it courteous ?

Mr. Justice Lush. Do you mean you did not think it courteous not to tell him, or you did not think you did tell him ?—I mean I did not do it.

We all know that, but did you think it courteous not to do it ?—I did not see any reason why I should.

Sir Edward Marshall Hall. I will try and show you a reason why you did not.

Mr. Justice Lush. " I did not telephone ; I saw no reason for doing it."

Sir Edward Marshall Hall. Did you offer to give a death certificate ?—I could not give a death certificate.

Do answer that question. Did you offer Mrs. Burnham to give her a death certificate ?—No, certainly not.

Did she say she would not have a death certificate, and refuse it ?—Yes.

Although you told her you could not give her one ? I want to be precise over that.—What I did say was that I could inform the Coroner, and it was possible an inquest might be avoided, and she objected to that, and she said she wanted an inquest at all costs, to be exact.

That is your reason, is it ? Will you kindly look at what you said before the Magistrates : " I would not give a death certificate because I had not attended Nellie Burnham for a time prior to her death." That is precisely what I say now.

Do you mean to tell me that you, having been called in two hours before this child died, and being satisfied that the child died of diphtheria and pneumonia, were not entitled to give a certificate ?—No.

You do not say that you know you might have given a certificate ?—The certificate of death states : " I have attended so and so in the last illness." I had not ; I was called in when the child was dying.

Is not that her last illness ?—No.

Do you mean to say you could not have given a certificate of death ?—I do not think so.

Be careful. — Only with the permission of the Coroner.

Did you tell the Coroner that you were quite willing to give a certificate of death ?—I told the Coroner that I was quite willing to tell him what the child died of.

That was not my question. Did you tell the Coroner this ? Did you say you were prepared to give a death certificate if the Deputy Coroner approved ?—I was prepared to certify actually what the cause of death was, but I was not prepared to sign the official certificate.

Do not quibble with me ; certifying what causes the death is not the colloquial word for death certificate. Would this statement be true, that you were prepared to give a death certificate if the Deputy Coroner approved ?—It depended entirely on what you mean by death certificate, but not the official form.

Have you ever heard of death certificate meaning anything but the official death certificate ?

Mr. JUSTICE LUSH. Is that in re-examination ?

Sir EDWARD MARSHALL HALL. No, my Lord. There have been proceedings in the High Court, and it is an Exhibit to an Affidavit which was put forward by my learned friends. (To the Witness.) I am sorry to put it to you, but you have a very strong feeling against Dr. Hadwen, have you not ?—No, I have not.

Be careful.—I am very careful.

I have more to ask you than I want to ask you. I am not going through all the correspondence in the Press, because I will not bother about it, but during last August did you write to the Editors of two London papers asking them to interview you in reference to Dr. Hadwen ? Be careful of your answer. Did you write to the *Daily Express* and the *Daily Mail* asking them to send representatives to interview you, as you could give important information with regard to Dr. Hadwen's medical position ?—You are referring to August, last year ?

Yes. You did ?—Yes.

Did they both send representatives ?—I forget now. I think one of them did.

Both. Shall I bring them both into Court ; they are here ?—No, I do not dispute it.

Was your communication to them so libellous that they never printed a word of it ?—I forget entirely.

Did either the *Daily Mail* or the *Daily Express*, or the Gloucester paper, print any of it ?—I do not know they did not.

Did you tell these people that Dr. Hadwen was not entitled to the medical qualifications he held ?—Nothing of the sort.

Did you tell them that he was not entitled to the qualifications that appear after his name in the books of reference ?—I told them there was a discrepancy.

Did you tell them this, first of all, if I may generalise it. Were not the contents of your communications to both these newspaper men a violent attack upon Dr. Hadwen ?—No.

And an attack upon Dr. Hadwen's professional status ?—No.

Did you suggest that he had no right to use some of the degrees and diplomas credited to him in a book about Gloucester men printed locally ?—I pointed out the discrepancy between that locally printed book and the Medical Register.

Did you say that Dr. Hadwen had only been a chemist's assistant ?—No, I did not.

Before he became a doctor ?—I have always heard he has been a chemist, and I may have said so, but I never said chemist's assistant.

And in the letters you wrote to the *Express*, and to the other paper, did you say : " I have some very interesting information to give your representative concerning Dr. Hadwen, if he will kindly call " ?—I wrote to one of them, because he specially asked me for information.

Do you know the names of the two gentlemen ?—I do not.

They are Mr. Webber, and Mr. Pampheno ?—That was one, I think.

I put it to you that you went out of your way to try and damn Dr. Hadwen's professional reputation last August ?

Mr. JUSTICE LUSH. Was that the month in which the child died ?

Sir EDWARD MARSHALL HALL. No, August, 1923, the year before.

Mr. JUSTICE LUSH. I did not gather that.

Sir EDWARD MARSHALL HALL. I did put it to him. In August, 1923, there had been a very acrimonious correspondence between you and Dr. Hadwen, had there not ?—Yes.

I see two of them are exhibited ; they were put in by the prosecution before the Magistrates. You put in a very insolent letter ?—It was the letter of an angry man, I admit.

Therefore I am not alluding to those, but after the anger had subsided, and the contest about vaccination had subsided, did you deliberately go out of your way to get into communication with London papers ?—They asked for information, and I gave it.

Mr. JUSTICE LUSH. I did not gather that. I thought you volunteered the information to the London papers, from what you said ?—They asked me to send anything I could.

Was that before, or after, you communicated with them ?—They asked me before.

Sir EDWARD MARSHALL HALL. Do you put that upon me ?—Certainly.

Mr. JUSTICE LUSH. I gathered from your answer before that you wrote first ?—No, they called on me long before that, and asked for information, and when they left they said : " Will you tell us anything more you hear ? "

Sir EDWARD MARSHALL HALL. I do want you to be careful. Did you write a letter marked " private and confidential " to the Editor of a London paper saying : " I have some interesting information to give your representative, if he will kindly call upon me *re* Dr. Hadwen " ?

Mr. JUSTICE LUSH. Was that letter Sir Edward is quoting the first communication that passed between you and the Editor of the paper ?—No. The reporter called on me, and asked me to give all the information I could.

Before you ever wrote to him ?—Yes.

Sir EDWARD MARSHALL HALL. The reporter called upon you ? — The representative of the paper.

Then you wrote to the Editor of the London paper ?—I did not know where the reporter was.

Why should you, a member of the same profession, take upon yourself to communicate to a London paper matter derogatory to one of your brother professionals in the City ?—Because he had been communicating to the local Press, and to the Press all over the world, matter derogatory to me, and to everybody else in the profession.

In saying he did not believe in vaccination ?—He said more than that.

He simply said he did not believe in vaccination, and you people did, and you took it upon yourself to say that that was a reflection personally ?—It was not a question of belief in vaccination ; it was a question of the epidemic here, and the suggestion he made was that there was no small-pox in the town ; it was all chicken-pox, and that the whole epidemic had been trumped up for the benefit of the members of the profession.

So you thought you would communicate private information with regard to his professional status to the newspapers ?—I had been asked to give all the information I could.

Mr. Justice Lush. Only chicken-pox, he said?—Yes.

Sir Edward Marshall Hall. Do you know he was never given an opportunity of attending the post mortem on this dead child?—Yes. No more was I.

What have you to do with it; you are not charged with the manslaughter of the child?—No.

It may be, may it not, that the exploratory operation of yours, by the piercing of the lung to see if there was any fluid, having regard to the condition of that child, accelerated that child's death by some minutes, or possibly hours? I put it to you that that was a totally unnecessary and unjustifiable operation?—It was absolutely the correct thing to do.

Having made up your mind to the fact that one lung was solidified ——.—I had not made up my mind it was solid; that is why I put the needle in.

Supposing you had found fluid, what would have been the effect?—The question then would have been to see whether it was worth while draining the lung, so as to relieve the respiration.

I suggest to you that the only possible justification for that exploratory operation would have been if you had diagnosed pleurisy or effusion?—Quite, if I had.

But you had not diagnosed pleurisy or effusion; you had diagnosed solidity?—I had not diagnosed anything; I did not know.

You told us in your evidence: "I found the right lung solid."—That was the ultimate conclusion I came to.

It was your first diagnosis?—I put in the needle to make dead certain there was not any fluid. It is rather splitting hairs, is it not?

If you had had a reasonable doubt as to whether there was not effusion, and pleuritic effusion, then you would have been justified in exploring, would you not?—I thought there was effusion; that is why I did it.

May I take it that you were in doubt as to whether your diagnosis of solidity was correct?—I wanted confirmation.

Mr. Justice Lush. What was the consequence on the child of this exploration?

Sir Edward Marshall Hall. It left a wound which was apparent at the post-mortem examination. (To the Witness.) Where is the needle? (Same produced.) Was it an ordinary hypodermic needle?—No, a specially long needle.

That is introduced where, here? (Indicating.)—Yes.

Then it is drawn out and if there is any fluid you draw it out with the backward turn?—Yes.

If there is no fluid it comes out dry?—Yes.

Mr. Justice Lush. Would that do any harm?—None whatever.

Sir Edward Marshall Hall. You think none whatever?—I am sure.

I suppose in this case it did no harm because the child was moribund?—It would not have done harm in any case; it is a thing which is done every day.

And a mistaken diagnosis in diphtheria is done every day, is not it?—I do not know anything about it.

Have you taken the trouble to look at the reports? Do you know that in the London area alone in 1923 there were 2000 wrongly diagnosed cases of diphtheria sent to one hospital?—I have heard that.

It is in the Registrar-General's report?—That is not my affair.

Mr. Justice Lush. You know it is right?—I do not know anything about it; I do not dispute it.

There are a large number of wrongly diagnosed cases?—I do not know anything about it.

Sir Edward Marshall Hall. The report says: "Summary of all cases admitted with mistaken diagnoses in 1923 in the Fever Hospitals in the London area. Diphtheria or membranous croup 1985 wrongly diagnosed. 36 deaths."

Mr Vachell. Where there were no swabs taken.

Sir Edward Marshall Hall. How do you know; there is no evidence of that.

Mr. Vachell. You shall hear later.

Sir Edward Marshall Hall. (To the Witness.) Of course, you are a great believer in the antitoxin treatment?—Certainly.

Have you ever taken the trouble to study the Registrar-General's report on that alone?—No.

Do you know the number of deaths per million from diphtheria now are much higher than they were in 1876, 20 years before the antitoxin was discovered?—I do not know anything about it. I have not studied the statistics.

Mr. Vachell. I do not know if my learned friend would be content to wait till Sir William Willcox is in the box.

Mr. Justice Lush. I think it would be better.

Sir Edward Marshall Hall. Very well, I will wait.

Re-examined by Mr. Vachell.

There was, was there not, some epidemic in Gloucester in June of 1923?—Yes.

What was it?—Small-pox chiefly and a certain amount of chicken-pox.

Did Dr. Hadwen write a letter, which I see was inserted as an advertisement in the press, which dealt with that subject from the anti-vaccination point of view?—Yes, we have a print of that here. There are a number of things he says in that letter.

Mr. Justice Lush. If we are going into the anti-vaccination question we will do it to-morrow. I propose we should not do it at all. It is not necessary, is it?

Mr. Vachell. No, only this, that the suggestion here is that this gentleman——

Mr. Justice Lush. Dr. Ellis has intimated there was a very strong difference of opinion or difference of statement.

Mr. Vachell. And an attack upon members of the profession.

Sir Edward Marshall Hall. There was no attack on the profession.

Mr. Vachell. Yes, there was. (To the Witness.) There was this attack made and did you then yourself enter into some correspondence with Dr. Hadwen on the subject?—Yes, privately.

Do I understand that afterwards you were asked for certain information about Dr. Hadwen or that you volunteered it?—Yes.

What was it?

Sir Edward Marshall Hall. I understood him to say he was asked about a local report and he wrote to the London papers.—I was asked by three reporters. Three reporters came into my room asking for information, and before they went they said, "If you find out anything else you can oblige us with, we shall be glad."

Mr. Vachell. As a matter of fact were there some overtures with a view to making up your differences with Dr. Hadwen shortly before the illness of this child took place?—Yes.

And that was the position, was it, at the time that this child was taken ill?—Yes.

You were not present at the post-mortem examination yourself?—No.

So that all that you know about the child's condition, all you can tell is what you observed during its life?—Yes, clinically.

Mr. Justice Lush. If you are going into the question with Sir William Willcox or other doctors as to the effect of the antitoxin treatment, I will not ask Dr. Ellis anything about it, but I should like to ask some medical expert as to the time at which the antitoxin to be effective must be administered. The doctor said it was too late on the 9th.

Mr. Vachell. Sir William Willcox will tell your Lordship; I will postpone it and I will deal with it later.

Sir Edward Marshall Hall. I have left it, as my friend asked me to leave it, until Sir William Willcox came. I think you will find Dr. Washbourn quite competent to deal with it, but never mind now.

(*Adjourned to the following morning at* 10.30.)

Tuesday, October 28th, 1924.

Sir Edward Marshall Hall. My Lord, I have three or four medical gentlemen here whom I may or may not have to call, according to how the case develops. They are entitled to be in Court, but I understand they have not been allowed to come into Court.

Mr. Justice Lush. I do not quite understand on what principle people are sometimes kept out of Court and sometimes allowed in.

Sir Edward Marshall Hall. There was no application by my learned friend or I that the witnesses should be kept out of Court, and even if they are my witnesses, they are in the same position as Sir William Willcox who has been here instructing my learned friend.

Mr. Justice Lush. Certainly you are entitled to have them in.

Sir Edward Marshall Hall. That intimation from your Lordship is quite sufficient.

Mr. Justice Lush. They are expert witnesses.

Sir Edward Marshall Hall. Yes, they are not witnesses to facts at all.

Mr. Justice Lush. Yes, certainly.

Mr. Vachell. Your Lordship quite understands that no action on my part prevented it ?

Mr. Justice Lush. Nobody would think of saying so.

Mr. Vachell. I believe some of my witnesses have been out of Court.

Mr. Justice Lush. All your expert witnesses are entitled to be in Court.

Mr. Vachell. If your Lordship pleases.

DR. WILLIAM WASHBOURN, *sworn.*

Examined by Mr. Vachell.

What are your qualifications ?—Member of the Royal College of Surgeons of England and a Licentiate of the Royal College of Physicians of London.

I think you have a membership of one of the Orders ?—Yes, I have.

Which Order is it ?—C.B.E.

Companion of the Order of the British Empire ?—Yes.

Have you practised as a medical man in Gloucester for a number of years ?—I have.

For how long ?—Since 1885.

From 1885 onwards down to the present time ?—Yes.

Did you on the 12th August make a post-mortem examination on the body of this little girl, Nellie Burnham ?—I did.

Have you your notes there ?—Yes.

You are at liberty to refer to them if you desire to. Will you just tell us slowly and in detail what you found ?—The post mortem took place at 4.30 in the afternoon on August 12th. The body was poorly nourished and there was post-mortem staining on the skin of the dependent parts of the body. There was a puncture of the skin at the back of the chest on the right side which had been covered with gauze dressing. This puncture was such as might have been caused by an exploring needle. The back of the throat, the tonsils, the soft palate and the larynx were intensely inflamed, so much so as to be almost black in one or two places. There was an adherent patch of membrane the size of a shilling at the back of the epiglottis.

What was the nature of that patch of membrane you have spoken about ?—It was diphtheritic membrane.

That is the membrane characteristic or the symptom of diphtheria ?—Yes.

Diphtheritic you call it ?—Yes.

Show the Jury whereabouts the epiglottis is ?—Right at the back of the mouth at the top of the larynx ; you can just sometimes see the top of the epiglottis.

It is at the root of the tongue ?—Yes. The mucous membrane of both bronchial tubes was congested. The right lung was red and solid throughout from inflammation. It just floated in water.

That is the right lung ?—The right lung. The right bronchial tubes were completely filled with dense membrane, some of which was adherent and had evidently been formed in situ.

Mr. Justice Lush. What is the significance of that " formed in situ." What does it mean exactly ?—It means it had grown where it was found ; it had not come from elsewhere.

Mr. Vachell. What was the nature of that membrane that you found in the tube of the right lung ?—It was diphtheritic membrane. Above this adherent portion at the top of the largest bronchial tube was a loose piece of membrane which had apparently been inhaled from higher up.

A loose bit of membrane, what sort of membrane was that ?—It was diphtheritic membrane and in size it was about three inches long by one inch in diameter.

That was lying loose, was it ?—On the top of the other membrane which was adherent.

Then you say that that apparently had been inhaled. It had loosened from a place higher up and was lying where you found it ?—Yes.

Could you see any portion of the air passages from which that membrane was likely to have become detached ?—I think it must have become detached from the portion which I have already described which was intensely inflamed. It was too big to have come from the larynx alone, but in part it may have been attached to the upper portion of the larynx as well as to the inflamed portion of the throat.

What you call the inflamed area from which you think it may have become detached, would that be within sight if anyone looked into the child's mouth ?—Yes, some of it certainly would have been in sight—the back of the throat, tonsils, and soft palate.

How do you account for the character of these inflamed or raw spots ? Why should they be raw and inflamed ?—I think that is where the membrane had separated from, leaving an inflamed surface.

Mr. Justice Lush. You say that anybody examining the throat in the ordinary way in which a doctor does examine the throat would see that inflamed part ?—Yes.

And therefore would see the membrane before it was detached ?

Mr. Vachell. Yes.

The Witness. The left bronchial tubes were slightly congested as also was the trachea which we call the windpipe. In the right pleural cavity there was a small quantity of fluid.

Is that at the base of the lung ?—Yes, there was a small quantity, somewhere about three ounces, of clear fluid. The left lung was what we call emphysematous, that is to say, unduly distended, because it had to do the work of two lungs in fact.

Mr. Justice Lush. That would naturally come from any pneumonic condition ?—Yes. The heart appeared to be normal. Its cavities were not unduly distended. The stomach, liver, intestines, and kidneys appeared to be healthy. There was no membrane in the stomach. As regards the brain the vessels were slightly congested. In other respects it appeared to be normal.

Mr. Vachell. Did you form an opinion as to the cause of death ?—I did.

What is that opinion ?—My opinion is that death was due to diphtheria and pneumonia.

Is that an opinion that you can express with confidence ?—Yes.

You are, are you not, the appointed bacteriologist for the city ?—I am.

Is it your duty to examine swabs which may be submitted to you ?—Yes.

Did you receive from Dr. Ellis on the 10th August, that was the Sunday, I think, a swab which he delivered to you, taken from the throat of this child ?—I did.

Sir Edward Marshall Hall. I am not objecting here except because I think we are getting on very dangerous practice. Your Lordship knows the enormous amount of care that is always required in the case of an exhumation to prove that the articles examined by the bacteriologist are the identical articles that have been taken from the body of the dead person who is the person in respect of whom the charge is made. I am not throwing the slightest doubt on the honesty or integrity of this gentleman, or Dr. Ellis, but we ought to have some proof as to the identity of the swab examined other than merely the *ipse dixit* of these gentlemen, such as one doctor saying, " I handed it," and the other saying, " I examined it."

Mr. Justice Lush. I quite appreciate that point.

Mr. Vachell. Not from the dead body ; from the child, of course, when it was living.

Mr. Justice Lush. I know, but Sir Edward's point is, I suppose, that many swabs may have come, and Dr. Washbourn may have, for all that appears from the evidence, have confused the evidence.

Sir Edward Marshall Hall. I submit in a criminal case of this kind it is necessary to prove that the swab examined by Dr. Washbourn was the identical swab that came from the throat of the child Nellie, and that can only be proved by saying, " I took that swab and handed it personally to Dr. Washbourn."

Mr. Justice Lush. I suppose if you insist we must go into it.

Sir Edward Marshall Hall. I will get an assurance from Dr. Washbourn as to how it came.

The Witness. May I put it in my own way. I received a swab marked " N. Burnham " from Dr. Ellis. It was marked in that way.

Sir Edward Marshall Hall. Did Dr. Ellis give it to you ?—He did not.

Mr. Justice Lush. What date was that ?—On the 10th August.

Sir Edward Marshall Hall. Did Dr. Ellis give it to you ?—He did not hand it to me himself, as far as I remember.

Mr. Justice Lush. Who did hand it to you, do you know ; how did you get it ?—It would probably have been left at my house by a messenger.

Mr. Vachell. Did you receive any other swab on that day ?—I do not think I did, but I have not got my notebook here with regard to swabs. Probably the medical officer of health would be able to tell you whether any further swabs were sent to me. I do not think I did on that date.

Did you receive any other swab on that day marked " N. Burnham " ?

Mr. Justice Lush. That is not conclusive even if he did not.

Mr. Vachell. Not conclusive, but it is a step towards it.—I only received one swab marked " N. Burnham."

Mr. Justice Lush. Before we go further, you cannot at present, of course, throw any further light upon the identity of the swab.

Mr. Vachell. Not until I have had Dr. Ellis recalled.

Mr. Justice Lush. I was going to suggest that, if Dr. Ellis would come back.

DR. EDGAR SEVERN ELLIS, *recalled.*

Further Examined by Mr. Vachell.

Did you take the swab from this child's throat yourself ?—I think so, I almost always do.

Mr. Justice Lush. I thought yesterday you said you did ?—I do not remember any occasion when I have not.

Cannot you give us a definite answer ?—Yes, I think I can ; I took it myself.

I thought yesterday you said it ?—Yes, I am sure I took it myself.

Have you any sort of doubt now ?—No, not at all.

Why did you say you thought you did ?—I do not remember the exact occasion.

Sir Edward Marshall Hall. Then I submit this cannot be evidence.

Mr. Vachell. You know the swab I am referring to, the swab that was taken from this child Nellie Burnham's throat on Saturday the 9th ?—Yes.

Mr. Justice Lush. You were the only doctor there ?—Yes.

Who but you could have taken it ?—I do not think anybody could have. I might have sent a servant, but I do not recollect the occasion.

Mr. Vachell. First of all, when I say taking the swab what I meant to say was applying your swab to the throat ?—Yes, I took the swab.

In that sense ?—Yes.

Mr. Justice Lush. I thought there was no doubt ?—No doubt whatever. I took the swab.

Mr. Vachell. I used perhaps an unfortunate term in saying " taking it." The doctor thought I meant conveying it ?—I took the swab.

You put it into the child's throat, and you took it in that sense ?—Yes.

Having taken it what we want to know is what did you do with it next ?—I took it to Dr. Washbourn the next morning. I delivered it at the house, as far as I remember.

Mr Justice Lush. You yourself ?—As far as I remember.

Mr. Vachell. Did you place a mark upon it ?

Sir Edward Marshall Hall. I object ; that is not evidence. That is evidence of a written document. I object to the evidence of what is written on a document not produced.

Mr. Justice Lush. I do not think you can.

Sir Edward Marshall Hall. My Lord, we have had this over and over again in these cases, where the medical men themselves hand sealed jars to officers and officers take the sealed jars to London and hand them to Mr. Webster or the particular person in the sealed condition, and it is insisted that they are proved. Here the evidence is : " I took a swab in the sense I took it from the throat, and I caused it to be conveyed, or I think I took it myself ; I may have sent a servant who left it at Dr. Washbourn's house."

Mr. Justice Lush. The point we are on now is whether he can tell us what he marked upon it.

Mr. Vachell. I did not ask him that. I said : " Did you place a mark upon it ? " and that is the question objected to.

Mr. Justice Lush. I do not know that Sir Edward objected to the witness telling us what he marked.

Mr. Vachell. That he has not been asked. The answer is yes or no.

Mr. Justice Lush. We will go by very gradual stages.

Mr. Vachell. Did you place a mark upon it ?—Yes.

Mr. Justice Lush. May I ask what that mark was ?

Sir Edward Marshall Hall. No, I submit not.

Mr. Vachell. I do not wish to take any advantage of my learned friend.

Mr. Justice Lush. You would be very clever if you did that.

Sir Edward Marshall Hall. This is not a matter only of this case. A man's life might depend upon this answer, and I submit in law there can be no question about it. Asking what was marked on the parcel, which was some sort of written mark placed upon it obviously—the wrapper of this swab, because it could not have been placed on the swab itself—cannot be evidence, because it is giving evidence of the contents of a written document which is not produced.

Mr. Justice Lush. The written document may be destroyed. What became of the wrapper. Did you receive the swab wrapped up in something ?

Dr. Washbourn. They usually come in a glass tube. This was in an envelope, and on the outside of this envelope is the identification.

Mr. Justice Lush. What became of that envelope ?

Dr. Washbourn. It is destroyed ; always destroyed.

Mr. Justice Lush. I think you should preserve them. I think it would be wiser.

Sir Edward Marshall Hall. That is not the point. If the importance which is now attempted to be attached to this swab had been realised at the time when the swab was taken and examined every bit of identifying evidence should have been preserved.

I wish now to say that I object to this evidence because it does not sufficiently identify. I am not questioning Dr. Washbourn's bona fides in the slightest. This is not a question of a technical point. As your Lordship knows, in a criminal case no admissions can be made, and the prosecution have to prove the case strictly. I submit there is a hiatus in the identification of the swab examined with the swab taken, and as long as that exists you cannot have the evidence of what that swab contained.

Mr. JUSTICE LUSH. Surely that is not so. If the envelope with the mark on it has been destroyed surely you can give secondary evidence of what was on the envelope.

Sir EDWARD MARSHALL HALL. You can if it was last in my possession. You could give me notice to produce it, and in the absence of production then you could give secondary evidence.

Mr. JUSTICE LUSH. Take the ordinary case of the contents of a letter that has been destroyed and no copy kept. You can always allow evidence to be given of what it contains, because it is the best evidence that can be got.

Sir EDWARD MARSHALL HALL. Yes, if it is alleged to have been received by the person charged, or a party to the case. I agree if this swab had been handed to Dr. Hadwen with a mark upon it, and the wrapper which contained that mark was not produced I should not attempt to argue before a judge of your Lordship's experience that it would not be admissible to give evidence of the contents, but here is a swab delivered to somebody of whom I know nothing. Why I am insisting upon this point is because one of my grievances in this case—not against the Public Prosecutor because he was not then engaged in the case—on behalf of Dr. Hadwen, is that when they had decided to have a post-mortem examination, knowing what the charge was, they did not give Dr. Hadwen an opportunity of being present.

Mr. JUSTICE LUSH. That is quite a different point.

Sir EDWARD MARSHALL HALL. Therefore I insist upon what I conceive to be my legal rights subject to your Lordship's ruling, and I do submit strenuously that having regard to the fact that there is no sufficient positive identification of the swab examined by Dr. Washbourn with the swab taken from the child's throat, therefore Dr. Washbourn's evidence as to what he found in that swab is not, strictly speaking, admissible in this case. That is my point, and whatever your Lordship's intimation is I shall, of course, accept it at once.

Mr. JUSTICE LUSH. Do you press it?

Mr. VACHELL. No, my Lord, I do not particularly care. Of course, I put it forward as confirmatory evidence that the child was suffering from diphtheria.

Mr. JUSTICE LUSH. You see if you cannot get the evidence in as to what the result of the examination of the swab was it is no good. You rely upon that as confirmatory evidence, but you cannot get the evidence in unless you properly identify the swab.

Mr. VACHELL. That I realise, but what I was saying was that that is the only value of it. If I was in a position to prove the identity that would be the only value of it. It does not at all dispose of the question as to what this child died of. It is only a small item.

Mr. JUSTICE LUSH. Do you abandon it?

Mr. VACHELL. I will.

Mr. JUSTICE LUSH. I do not invite you to. I have not yet ruled on it. Do you want me to rule upon it?

Mr. VACHELL. I should prefer your Lordship to do it, but I have nothing to argue on the subject.

Mr. JUSTICE LUSH. I did not ask you to argue; I asked you to tell me whether you wished me to rule upon it.

Mr. VACHELL. My Lord, I do. I will take your Lordship's ruling.

Mr. JUSTICE LUSH. Well, I think it is admissible. You told us that the envelope was destroyed?

Dr. WASHBOURN. Yes.

Mr. JUSTICE LUSH. Sir Edward will have the benefit of the note of my decision in case it is wrong.

Sir EDWARD MARSHALL HALL. I felt I should not be doing my duty if I did not take the point.

Mr. JUSTICE LUSH. You are quite right to take the point.

Mr. VACHELL. Will you tell us what mark you put upon the envelope?

Dr. ELLIS. No, I cannot swear to that; presumably I put the name of the patient.

Mr. JUSTICE LUSH. That will not do, that you presumably did it?—I always do put the name of the patient, that is all I know. I cannot remember actually.

If you always did, you did it then?—Yes.

Yes, but do you always?—Yes, precisely, invariably.

The initials or the name?—The name. I may put N. Burnham; I may not have put Nellie.

Mr. VACHELL. That is all I want to ask you.

DR. WILLIAM WASHBOURN, *recalled.*

Examination continued by MR. VACHELL.

You told us, I think, what marking there was on the envelope of this swab?—Yes.

Did you submit the swab to bacteriological examination?—Yes, I did.

With what result?—The Klebs-Loeffler bacillus was present.

Sir EDWARD MARSHALL HALL. May we call it the K.-L. bacillus?

Mr. VACHELL. I am calling it throughout diphtheria bacillus. Is that the same as diphtheria bacillus?—Yes.

In your opinion was this pneumonia that you discovered in the body of the child secondary to the diphtheria?—I considered that it was a lobar pneumonia, and I believe it to have been secondary to the diphtheria.

Did you receive about this date—you will give me the exact dates—certain swabs from the Medical Officer of the Isolation Hospital, Dr. Berry?—I did.

Will you just give us the dates?—On August 12th one marked " Mrs. B."

Sir EDWARD MARSHALL HALL. *De bene esse* I do not object?—And also one marked " L. B."

Mr. JUSTICE LUSH. Both on the same date?—On the 12th August. Both of these proved to be negative; the Klebs-Loeffler bacillus was not found. On August 13th I received a swab from the City Hospital marked " G. B."

Mr. JUSTICE LUSH. These envelopes were destroyed, I suppose, like the last?—All destroyed. In this case the Klebs-Loeffler bacillus was present.

Sir EDWARD MARSHALL HALL. You call that positive?—Positive.

Mr. VACHELL. On the 11th did you receive one?—On the 11th I received a swab marked " H. Burnham " from Dr. Graham.

Mr. JUSTICE LUSH. We are going far afield. Are you going to pursue each one of these cases, because it will take a terrible time, and it has a very small bearing upon the question, has it not?

Mr. VACHELL. This was the last one.

Mr. JUSTICE LUSH. If we have to consider these at all we shall have to go carefully into each one of them, get at the history of the case, and all the rest of it, because we cannot do it in a cursory way if we do it at all. I should have thought you might jettison that.

Mr. VACHELL. Certainly, I will accept your Lordship's suggestion.

Mr. JUSTICE LUSH. You know better than I, of course, the importance of it.

Mr. VACHELL. This is the last one, and we have got half that, and then I say no more about it.

Sir EDWARD MARSHALL HALL. It will involve calling Dr. Graham, of course.

Mr. JUSTICE LUSH. Can you not content yourself with the evidence that bears directly on the case of this child Nellie.

Mr. VACHELL. Yes, my Lord, I think I will.

Mr. JUSTICE LUSH. Still you know more than I do about the importance of it.

Mr. Vachell. There is only just this one question that I am now in the course of putting. I was not going to put any more to Dr. Washbourn on the subject. He says on the 11th August he received a swab from Dr. Graham marked "H. Burnham." I was only going to ask what the result was there, and then there is an end of it.

Mr. Justice Lush. Do you object, Sir Edward?

Sir Edward Marshall Hall. Only in the comprehensive objection—if I am wrong upon the other.

Mr. Vachell. What was the result of the examination of that?—That swab was positive.

Cross-examined by Sir Edward Marshall Hall.

Of course, again subject to my objection, let me clear this up. It is all subject to my objection. "Mrs. B.," does that mean Mrs. Burnham, as far as you know?—I have no idea what it means.

From whom did you receive that swab?—That swab came from the Medical Officer of Health.

Dr. Berry?—Yes.

The one marked "L. B."; do you know to whom that referred?—No.

It came from Dr. Berry?—Yes, I have heard since, but I did not know at the time.

Having heard since that that in fact referred to the boy, Leonard Burnham?—Yes.

I will accept that for the purpose. Therefore in the case of Leonard Burnham, who had had identically the same throat late in July and had been apparently cured by Dr. Hadwen, his swab was negative?—It was.

As to the other one, "G. B.," you do not know who that is. That was from the City Hospital, not Dr. Berry?—It is practically the same thing, because Dr. Berry is the doctor to the hospital.

And as to the other one, "H. Burnham," were you told afterwards that that was Hilda Burnham?—Yes, I think I was.

And that was positive?—Yes.

You have already said this morning that in your opinion this was a case of lobar pneumonia, but you thought it was secondary to the diphtheria?—I did.

Would this be right to say, that except for a certain amount of compensatory emphysema the left lung appeared normal?—Yes.

Mr. Justice Lush. Emphysema is a common complaint?—I take it it is bound to occur in such a case.

In which case?—In which the other lung is so involved that it is out of action.

Sir Edward Marshall Hall. If the right lung was out of action you would expect to find emphysema in the left?—Yes.

Almost of necessity?—Yes.

Therefore that was a symptom that was entirely conditional on the state of the right lung?—Yes.

There was some congestion of the left bronchial tubes as well as the trachea?—Yes.

The condition of the right lung was that of lobar pneumonia of recent date?—Yes.

Not more than two or three days?—I think so.

I do not want to put it in for purposes which my Lord will appreciate, but as a matter of fact you are entitled to look at that for yourself. (Document handed to witness.) Is that your writing. I do not put it in; I only want you to look at it. Will you read it to yourself, not out loud. Having read that, I ask you again, have you any doubt that the condition of the right lung was that of lobar pneumonia of recent date, not more than two or three days?—I believe it to have been so.

Sir Edward Marshall Hall. I hate mysteries in these cases.

Mr. Justice Lush. I do not know. I should like to know what is being submitted to the witnesses.

Sir Edward Marshall Hall. (To the Witness.) What I submitted to you was a letter of your own?—Yes.

Mr. Justice Lush. I wish you would ask what makes him think that the lobar pneumonia coincides in time with the 7th August.

Sir Edward Marshall Hall. I am going to develop that a little later; of course, it is the sheet-anchor of my case, but for the moment I have to get the atmosphere before I go to that. (To the Witness.) Did you know Dr. Ellis at all before this swab was sent to you?—Yes, he has been a personal friend for years.

What did you do first; did you examine the swab before you made the post-mortem examination?—Yes, before I knew anything about the case.

When you examined the swab, did you know in point of fact that the child from whom it had been taken was dead?—I did not.

Can you give me—this, of course, is all subject to my objection—the time of day on the Sunday when you examined the swab?—It was probably in the morning.

You cannot say better than that?—I do not think the report would have been received till the Monday morning.

Did you yourself do the bacteriological examination or one of your assistants?—I did it myself.

You take a smear and put it under the microscope?—I made a culture on the Sunday and that culture would not have been examined till the Monday morning.

If you had to make a culture it would have to wait till the Monday?—Yes.

Mr. Justice Lush. I was going to ask how long it took to make a culture and then get a result.

Sir Edward Marshall Hall. They vary with different germs?—In this case 12 to 14 hours is usually sufficient.

And you made yourself the microscopic examination in the morning?—Yes.

And you found then what is known as the Klebs and Loeffler bacillus?—Yes.

Two people are supposed to have diagnosed this, Mr. Klebs and Mr. Loeffler?—Yes.

And ever since that bacillus has been discovered it has been recognised in the medical profession by a large majority, I will not say universally, as being the specific bacillus of diphtheria?—It is.

But you agree, do you not, that it can be found in cases where there is no diphtheria?—It can in certain unusual cases.

In healthy children?—Sometimes.

And even in inanimate objects?—Yes.

I take it for the purposes of your answer that the very large majority of the medical practitioners of this and other countries are of opinion that it is the specific bacillus of the disease, diphtheria?—Yes.

Diphtheria meaning, of course, from its derivative sign of "diphth," which is Greek for a membrane, is it not?—Yes.

So it is called diphtheria because it is membranous?—Yes.

Did you see Dr. Ellis at all before you made the report upon the swab?—I did not.

When did you first know that that was a swab taken from a patient attended by Dr. Hadwen?—At the time I made the post-mortem examination.

Not before?—Not before.

When you examined the swab you did not know the patient from whom the swab had been taken?—I did not.

Nor the name of the medical man who had been attending the patient?—No.

When did you know of the death of Nellie?—At the time I was asked to make the post-mortem examination, I think on the afternoon before. I think that would be the Monday.

Was it the Sunday or the Monday that you were first told of the death of Nellie?—I am not quite sure. Was Monday the 11th?

Monday was the 11th?—Then it would have been on Monday afternoon in the Coroner's office they came to ask me about the post-mortem examination.

And you did, in fact, make the post-mortem examination on the 12th?—Yes.

About what time on the 12th?—About 4.30.

So 24 hours elapsed between your receiving the notification that a post-mortem was required and the actual making of the post-mortem examination ?—I think so.

And when you received the notification of the necessity for the post-mortem examination, you were also informed that the child had been a patient of Dr. Hadwen's ?—I am not quite sure that I heard that when I was asked to make the post-mortem examination or when I arrived at the post-mortem room.

But you knew it before the post-mortem examination ?—I certainly knew it before I started to make the post-mortem examination.

And did you know that there was, at any rate, any suggestion or a charge of negligence as against Dr. Hadwen in the treatment of this particular case ?—Yes.

The post-mortem examination was of vital importance as affecting a suggestion of that kind, was it not ?—Yes, in a sense it was.

Obviously, and I think you asked Dr. Bell to be present at the post-mortem examination or did he ask to come ?—I did not ask him to be present, but he was present.

He was in fact the Deputy Coroner ?—Yes.

He is a medical man ?—Yes.

He is also the official doctor of the prison ?—Yes.

He was Deputy Coroner and at that time he was Acting Coroner, was he not, because the Coroner was away on his holidays ?—I think he was.

And Dr. Bell was a gentleman whose name had been very prominently before the public in connexion with the unfortunate antivaccination dispute of the previous year. He was Chairman, was he not, of the Committee after Dr. Hadwen resigned ?—Not to my knowledge.

Then do not take any notice of that. Dr. Bell was present not at your invitation but I suppose as of right, being in fact for the moment Acting Coroner ?—Yes.

Did you suggest to anyone that Dr. Hadwen ought to be given an opportunity of either being present at the post-mortem examination or having some medical man to represent him ?—I think I asked Dr. Bell if Dr. Hadwen was going to be present.

From a gentleman of your reputation in this city may I say that is what I would have expected from you. Here you knew there was going to be, or might be, a very serious charge at any rate of negligent treatment; I am not going as far as a criminal charge of manslaughter. But there was the possibility of a charge of negligent treatment being preferred against a doctor in the town, a qualified medical man, in respect of the death of a child whose body you were going to examine post mortem ?—That is so.

But you think, as I think every fair-minded man would think, that at any rate he ought to have had an opportunity of either being present or being represented ?—I wondered why he was not there; I fully expected to see him there.

Mr. JUSTICE LUSH. You say you asked the question ?—I did.

Sir EDWARD MARSHALL HALL. You would not wonder now if you were told and you accepted the statement that Dr. Hadwen was never even informed of the death of the child until half an hour before the nquest was being held ?—No.

Mr. JUSTICE LUSH. Did you get an answer to your question ?

Sir EDWARD MARSHALL HALL. Did Dr. Bell give you any answer as to why he was not present ?—I think he said that Dr. Hadwen had not been invited; anyhow that he was not coming.

I want now to come to the point my Lord asked about. Whilst the post-mortem examination is being made, of course the portions that you are examining are excised from the body ?—They are.

Amongst other portions, did you take out this right lung ?—I did.

For the purpose of testing whether it would float n water or not; that was to test its density ?—Yes.

And did you find, as far as you could find, that it was practically solidified ?—Yes.

And did you call Dr. Bell's attention to the fact, as the lung lay on the post-mortem table, that it had arrived at the state of red hepatisation ?—I did.

And did you go on very carefully, and most fairly, also to call his attention to the fact that what is known as the state of grey hepatisation had not yet supervened ?

Mr. JUSTICE LUSH. What is the significance of that ?

Sir EDWARD MARSHALL HALL. That the red hepatisation was present, but that the lung had not yet arrived at the state of grey hepatisation. The only importance of it is this: Is there any other condition, I mean if you were right in your diagnosis of the red hepatisation, and also in your negative diagnosis that the grey state had not arrived, is there any state of pneumonia, except lobar pneumonia, in which you would find those two conditions ?—Yes, in the first of the conditions, red hepatisation.

Where do you find it ?—In lobular pneumonia you have appearances which are practically identical with the red hepatisation of lobar pneumonia.

But you never find the grey hepatisation ?—No.

Mr. JUSTICE LUSH. You must explain.

Sir EDWARD MARSHALL HALL. You might find in some conditions of lobar pneumonia red hepatisation, but you never will find grey hepatisation.

Mr. JUSTICE LUSH. In lobular ?

Sir EDWARD MARSHALL HALL. In lobular.

Mr. JUSTICE LUSH. This was not lobular ?

Sir EDWARD MARSHALL HALL. He has not said that for one moment. Having had your attention called to the actual condition of the body, the lung itself, you formed the opinion that it was lobar pneumonia of probably two or three days' duration ?—I did.

Is lobular pneumonia a well-known consequential condition of chill acting upon an enfeebled vitality ?—A consequence.

And the more enfeebled the vitality, the less the quantity of chill required to create a pneumonic condition ?—I take it that is so.

Mr. JUSTICE LUSH. That is to say, you more readily take it if you are enfeebled than if you are robust ?

Sir EDWARD MARSHALL HALL. Yes. (To the Witness.) We are told, upon what is now not questioned evidence, that on the evening of the 7th this little girl, who had been for days in bed suffering, at any rate, from a serious affection of the throat, had got out of bed, gone downstairs in her bare feet and nightgown, had gone to the scullery, and got a drink of water; you have heard that ?—Yes.

Will you accept that as true ?—Yes.

That the child then returned to bed. We have no evidence as to how long she took going back, but she returned, and the following morning she was seized with the first attack of vomiting; you have heard that ?—Yes.

Is not one of the first evidences of pneumonia, or the on-coming of pneumonia, in a case like that, vomiting ?—No, I do not think it is; the usual first onset is a shivering attack.

Yes, I do not say it is absolutely the first, but amongst the early symptoms of, shall we call it, a chill, pneumonia, is not vomiting one of the best recognised ?—No. I do not think it is.

I would suggest to you that is not capable of challenge on the point of view of the present existing medical authorities, but if you say that is so I must go into it. Dr. Ellis agreed with it. After Dr. Ellis's answer I did not think it would be challenged, because there was no re-examination.

Mr. VACHELL. I said I would leave these matters until I came to Sir William Willcox, and you agreed.

Sir EDWARD MARSHALL HALL. Would you prefer I should leave that. Have you made a great study of what are the earlier symptoms of pneumonia ?—I have looked up some of the authorities, and I cannot find any reference to vomiting as an early symptom.

If it is not one of the first symptoms, what would you say about vomiting suddenly supervening on this morning following this visit downstairs, would you have attached any importance to it ?—Vomiting is so extremely common in diphtheria, especially in severe diphtheria, that I should have expected it.

Would you then think that if there was no vomiting in a case of suspected diphtheria that probably it was not diphtheria ?—No, all that would have indicated was that probably it was not a serious case of diphtheria.

But surely if it was diphtheria it was diphtheria from the first ?—Certainly.

The mother tells us the child was first taken ill on the 28th of July. Then if this was, in fact, diphtheria that the child was suffering from, it was diphtheria on the 28th July ?

Mr. Justice Lush. The 30th July was the date we had.

Sir Edward Marshall Hall. Call it that. It was diphtheria on the 30th ?—Yes.

If there, in point of fact, had been no vomiting between the 30th of July and the 8th of August, and vomiting is a very common sign of diphtheria, would not you say that the absence of vomiting was also a very useful factor in diagnosing that this was not diphtheria ?—No, I do not think vomiting is sufficiently characteristic for it to be of any great significance in the diagnosis of diphtheria.

Therefore, if that is the correct answer, that it is not of sufficient importance, would not you think that if it supervened on the eighth day, or the ninth day, that it was due to some other cause ?—No, because although it is not of importance in the diagnosis of diphtheria, it is of extreme importance as regards the prognosis, that is the outlook of the case of diphtheria.

Mr. Justice Lush. Is this what you mean : If there is no vomiting, although it is not characteristic, and therefore indicative of the disease, yet it is a hopeful sign as to the result of the illness ?—That is so.

Sir Edward Marshall Hall. If it suddenly supervened on the eighth day, what do you say then ?—It is a serious indication.

And one that ought, at any rate, to have been communicated to the medical man at once ?—Certainly.

And whilst I am on the question of diphtheria for the moment, is not the swelling of the cervical glands one of the most important indications of diphtheria ?—It is an indication of a very severe case, but it does by no means always occur, even in severe cases. In this case it was not present.

There was no swelling of the cervical glands at all ?—At the post-mortem no swelling.

Dr. Ellis has told us there was a slight swelling, but it was not noticeable. The post-mortem showed no sign of it. It had disappeared at the post-mortem ?—A very slight swelling would disappear.

I am rather stressing this. Do not the medical profession attach great importance to the swelling of the cervical glands when it is present ? They are *these* glands (indicating) ?—The glands under the jaw.

Would you think that a medical man was justified in assuming that when he found no swelling of the cervical glands that he might assume it was not diphtheritic ?—No, I am afraid I cannot go as far as that.

Mr. Justice Lush. I wish you would ask, at some stage, whether he says that vomiting is not characteristic of diphtheria, or if a chill sets up pneumonia, leaving out the diphtheria, whether he would expect vomiting to supervene ?

Sir Edward Marshall Hall. If you get pneumonia, superadded to diphtheria, you would certainly expect vomiting, would you not ?—Possibly, because the pneumonia would tend to make the diphtheria worse.

Mr. Justice Lush. The pneumonia ?

Sir Edward Marshall Hall. Would aggravate the diphtheria ?—Or, put it in another way, the condition of the patient worse.

I was going to put it in a different way still, that a case of diphtheria, which in all probability was on the road to recovery, might be converted into fatal diphtheria by a chill and pneumonia ?—By pneumonia, yes.

I want to deal for a moment with this membrane. You say the membrane you found was undoubtedly diphtheritic. Did you examine the membrane microscopically ?—I did not.

There are many kinds of membrane ?—There is no kind of membrane resembling the diphtheria membrane, so far as I know.

It may be that you have a marvellously trained eye, but surely you, being a bacteriologist, and therefore not hampered by any disbelief in bacteriology, the only final test, so far as you are concerned, would be a microscopical examination of the membrane ?—I think it was absolutely clear, without a microscopical examination.

You thought it was so clear, and not necessary to examine ?—I did.

Does this bacillus cause the membrane ?—In a sense it does.

And would it be present in enormous quantities in the membrane ?—It would.

And is it only in the membrane that you would expect to find the bacillus, or would you find it in the surrounding tissues ?—You would find it in the surrounding tissues, in all probability.

This membrane you described as having sloughed off, must have sloughed during life ?—Yes.

It could not slough off after death, that is quite obvious ?—No.

I take it that within a quarter of an hour of a child's death, under conditions that have been described, there would not be sufficient vitality in the child to eject, by the mouth, any large piece of membrane ?—I really could not answer that question.

You would think it highly improbable, would not you ?—No, I think it is quite possible she might have brought it up.

The membrane you found might have been in such a position during life as to have been invisible to anybody examining the child by the mouth ?—I do not think it could have been, because of its size.

Is one of the most cogent signs of diphtheria, as contra-distinguished to any other diseases of the throat, a sort of yellow pallid colour at the back of the throat itself ?—Do you mean apart from the membrane ?——

Yes ?—No, I do not think it is.

If you get a very red appearance at the back of the throat the probability is that the disease is not diphtheria ?—I do not think the appearance of any particular significance.

Have you had much personal experience of diphtheria cases in your profession ?—Yes, I have had a reasonable experience both in hospital and in private.

About how many cases of diphtheria do you think you personally have seen ?—I should think 300 or 400.

In the course of your practice ?—Yes.

You agree, do you not, that at any rate the epiglottis is invisible ?—Yes.

If there was membrane on the epiglottis even a proper examination, unless you had a laryngoscope, would not enable you to see it ?—You would not.

And you could not use a laryngoscope in the case of a child as ill as that ?—No.

Mr. Justice Lush. Supposing you examined the throat of a patient and you find nothing but red inflammatory symptoms and no white patch at all, you would not then assume there was any real danger of its being a diphtheritic case, would you ?—I think you would, and I think in such a case it would be wiser to proceed to further measures to clear up the diagnosis.

If all you saw was a red throat ?—Yes.

Sir Edward Marshall Hall. May I put it like this, that at the present moment so many of the members of the profession have such a belief in the diphtheria germ that in practically any condition of sore throat which is not absolutely obvious they will take a swab and administer antitoxin; is not that the sort of general practice ?—Yes.

On this ground, that if it is not diphtheria it can do no harm; if it turns out to be diphtheria it may do good ?—Yes.

Mr. Justice Lush. That is the counsel of perfection, is not it ? I thought most people if they saw a throat only red they only gargled it; is not that so ? —Yes, I think so unless the patient is ill.

Mr. Justice Lush. I mean unless there are some other symptoms.

Sir Edward Marshall Hall. Do you agree that acute follicular tonsillitis is a condition that it is very difficult to diagnose or do you think it is easy ?—In some cases it is impossible to diagnose without bacteriological examination.

It may be so, like diphtheria, unless you have a bacteriological examination, that you cannot say for certain ?—I do not agree.

The condition of the stomach, kidneys, liver, and intestines was all healthy ?—Yes.

The heart was healthy ?—To the naked eye.

I take it your examination of the lung was by the naked eye ?

Mr. Justice Lush. Our eyes are naked; there are no other ways of looking.

Sir Edward Marshall Hall. As far as you could judge, the heart was healthy ?—Yes.

I am not suggesting your opinion is wrong or saying it is wrong, but that is a condition which is more or less inconsistent with an acute diphtheritic condition, is it not, if the heart is all right You would expect fatty degeneration, would not you ?—In a great many cases there would be fatty degeneration, but by no means in all cases.

But there are cases in which the bacillus is not indicative of diphtheria.

Mr. Justice Lush. I did not appreciate that.

Sir Edward Marshall Hall. I know what is coming, but your Lordship perhaps may not have noticed it. He says the condition of the heart was normal. I will tell your Lordship now that Dr. Willcox is going to say it is impossible to say what is the condition of the heart unless you have a microscopical examination. I am challenging that when Sir William comes, but I am accepting the condition deposed to by Dr. Washbourn who saw the heart. The importance of it is this, that Dr. Washbourn agrees that in many cases of diphtheria you expect to find a condition of fatty degeneration of the heart, and if you do not find it, it is a factor. (To the Witness.) You agree in fairness to anybody that if the issue here was diphtheria or no diphtheria it would be one of the factors to be considered on the negative contention that in point of fact, as far as you know, the heart was normal. It is worthy of consideration; I do not put it any higher. It is worthy of consideration on the negative hypothesis ?—Yes.

The supervention of pneumonia indicates a febrile condition in the patient, does it not, of necessity ?—Yes.

Is it not a fact that every febrile condition in children on its immediate supervention creates a tendency to vomit ? You say shivering is the first. I say shivering and vomiting is the first indication of a febrile condition in a child ?—I do not think it is by any means universally so.

Would not you expect if a child was suddenly attacked and became febrile—never mind what the cause of the fever was—that that child would amongst its very earliest symptoms vomit ?—My answer is No. One frequently sees children who are feverish and who do not vomit.

I will only put it to you that one of the very first symptoms in children—have you had much experience of children ?—A fair amount.

Especially in children who are suddenly attacked with a feverish condition, is that you get shivering and vomiting ?—My answer is No.

Would you go so far as to agree you get it commonly ? —Yes, I will.

You have said that you found a condition of lobar pneumonia on the 12th August probably of two or three days' duration. Does that mean ante-mortem or at the date of the examination ?—Ante-mortem.

So that therefore that would be two or three days anterior to midnight of the 9th to 10th ?—Yes.

Do you realise that that fits in exactly with the admitted occasion of the night of the 7th when, at any rate, the child was exposed to the risk of the chill; I put it no higher than that ?—Supposing the pneumonia had been caused by that chill, therefore it would have begun to have manifested itself from 12 to 24 hours afterwards. There must be some interval.

I will give you your full 24 hours. If you give it 24 hours the pneumonia would begin to manifest itself, that is to say, it would be in a condition of activity by the night of the 8th, or by the evening of the 8th ?—Yes, I suppose it would. It fits in.

The child died about 36 hours after that; rather more, and you say two or three days ?—Yes.

It is consistent, is it not ?—It is consistent, but it is rather a tight fit.

I quite agree Dr. Ellis used the same word. May I put this to you, that it is impossible to absolutely eliminate it as the cause of the pneumonia ?—I agree.

And my friend, Mr. Clements, has reminded me of a question I was going to put to you. I think before the magistrates you said this, "I think the child had the pneumonia which I should expect to find following a chill" ?—I also agree.

Mr. Justice Lush. Then why, if that is so and the time does fit in, although the fit is a tight one, do you say you are still inclined to the view that the pneumonia was the sequence and was caused by the diphtheria instead of by the chill ?—Because I think it is much more likely to have been caused by what we know was present.

That is what I want to understand, your reasons for that, because you have the two possible factors. One is the diphtheria which does often set up pneumonia. The other is a chill which also very often sets up pneumonia. Why do you choose the one and reject the other ?—Because I think the one is the more probable.

Why, that is what I want to know ?—Because it is a so much more potent factor in the production of pneumonia.

But diphtheria cases do not ordinarily set up pneumonia ?—Yes, very frequently they do.

But not ordinarily ?—In severe cases. They very seldom die without some patch of pneumonia in one or other lung.

Sir Edward Marshall Hall. May I put it in vulgar parlance for a moment, that the odds are less against its being a sequela than for its being the result of a chill ?—No, I do not agree. I think the odds are in favour of its being a sequela.

I say there are less odds; it is longer odds against its being so, but at the same time you cannot ignore it ?—I cannot.

I think you said this also, "I cannot say if the child would have died if she had not had pneumonia."

Mr. Justice Lush. Did you say that ?—I did.

You cannot say that the pneumonia was not caused by the chill. It seems to follow that you cannot say that the child died from diphtheria; that is the logical sequence, is not it ? Will you deal with it because it is a very important part of the case, of course. If you cannot say that the child would have died but for the pneumonia and if you cannot say that the pneumonia was not caused by the chill, does not it seem to follow that you cannot say that the child died from diphtheria ?

Sir Edward Marshall Hall. That is the dilemma as I was putting it.

Mr. Justice Lush. I wanted to try to deal with that because it is an important question in the case.—It is a little bit difficult to express one's view, but I feel sure that the diphtheria was a very large determining factor in the death of the child.

That leaves it open still to the cause of the pneumonia. You think what was a large factor ?—The diphtheria.

Still the child might not have died, if it had been only diphtheria ?—She might not.

Sir Edward Marshall Hall. Do not you find a little difficulty in this case, because here is this child for eight days suffering from this disease, whatever it is, a disease of the throat, and no vomiting and no pneumonia until after she goes downstairs in this risky manner on the 7th. Does not that rather make you think that it was not diphtheria ?—No.

Not now that you have a swab, because nothing would make you believe this was not diphtheria, now, would it ; now you have had a swab which has had a positive reaction, you are certain it was diphtheria ?—That is not the reason I am certain it was diphtheria at all.

And the membrane ?—The post-mortem examination is the reason.

The membranous condition which you found, the condition of the child's body plus the bacteriological examination ?—Yes.

But apart from that, because Dr. Hadwen had not had a post-mortem examination and Dr. Hadwen had not had a swab, do not you think that the fact that vomiting had not supervened and no pneumonia had supervened as far as we know until the 8th day is an indication against diphtheria, apart from the rest of the case which we now know of ?—It is a very slight indication one way or another.

You do not attach much importance to it either way ?—No, I do not.

I will go on with what you said, " I cannot say if the child would have died if she had not contracted pneumonia." I say similarly as regards diphtheria the child may have contracted a chill by going downstairs on the 7th August which chill might have developed into pneumonia. That is what you said and you agree ?—Yes, and I stick to it.

" It is impossible for me to say what part the pneumonia played in this child's death. At the post-mortem the child had the appearance of having had lobar pneumonia. I think the child had the pneumonia, which I should expect to find following a chill. The pneumonia was consistent with having been contracted in two or three days before death," and you repeat it ; that is your evidence to-day ?—Yes.

Mr. Justice Lush. Read the last line.

Sir Edward Marshall Hall. " I think the child had the pneumonia, which I should expect to find following a chill."—Might I explain what I meant. I meant by the expression as regards the form of pneumonia that the child had lobar pneumonia.

Sir Edward Marshall Hall. You say this later, " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill " ?—Again I meant by that lobar pneumonia.

Mr. Justice Lush. You mean by that it was the lobar as distinguished from the lobular ?—Yes.

Sir Edward Marshall Hall. Do you really accept my Lord's suggestion ? Would not you much more expect to find lobar pneumonia following a chill ?—Yes.

Mr. Justice Lush. That is what I meant. That rather seems to put the weight on that side of the scale which points to the chill being the cause. If it was of that type, which you think it was which indicates a chill as the cause, I ask you again why, notwithstanding that, you still think that the pneumonia was not caused, although of the lobar type, by the chill which usually does produce lobar pneumonia ? Do you see what I mean ?—I think I see. The reason is that the right bronchial tubes were so exceedingly involved in membrane that the condition was such that it would be likely to set up the pneumonia.

Sir Edward Marshall Hall. But you have a unilateral pneumonia here, only one lung. If that was the result of infection percolating or coming down from the throat, is not it incredible it should not have affected both lungs instead of one ?—No, because it is only the right bronchial tubes that were involved in the membrane.

Mr. Justice Lush. That is what he said ; the right bronchial tubes, the right lung.

Sir Edward Marshall Hall. That is what Dr. Ellis said yesterday. But do not you expect as a rule in lobular pneumonia to find a bilateral condition ?—It is generally the case, but by no means always.

Is lobular pneumonia what they call catarrhal pneumonia ?—Yes.

Mr. Justice Lush. Lobular pneumonia is generally bilateral ?—Generally bilateral.

Sir Edward Marshall Hall. And lobular pneumonia is the sort of pneumonia that you would expect to follow diphtheria ?—It is the usual sort to follow diphtheria.

Re-examined by Mr. Vachell.

When you made the post-mortem examination you found, I understand, in the right bronchial tubes diphtheria membrane ?—I did.

That was growing ?—Yes.

You said something about some of the membrane was in situ. What effect would diphtheria membrane have upon the lung from growing down the tube in that way ; what would the effect be ?—It would block the entry for air into the lung to some extent, and it would cause the lung to become inflamed.

That means to say it would cause pneumonia ?—Yes.

Of what description might that pneumonia be ?—As a rule it is a bronchial pneumonia ; in other words, a lobular pneumonia, but occasionally, as I believe was the case here, it is a lobar pneumonia.

Did you see sufficient evidence of this diphtheritic growth into the lungs in your opinion to set up pneumonia ?—Yes.

Of either kind ?—Yes.

Mr. Justice Lush. Will you say that again ?—Sufficient membrane to set up pneumonia of either kind.

Of either lobular or lobar ?—Yes.

Mr. Vachell. Was there sufficient to account for the condition of the lung that you found ?—There was.

You have been asked something about this germ—this Klebs-Loeffler germ. It is found, as you told us, in healthy throats sometimes ?—It is sometimes.

If it is found in throats of persons who are suffering from sore throat, what do you say is the matter with that person ?—I say that that person is suffering from diphtheria in all human probability.

Mr. Justice Lush. What is it that would make you say that exactly ?—That the patient is suffering from diphtheria in all human probability.

Yes. I wanted you to tell me what would make you say that ?—The presence of the Klebs-Loeffler bacillus in a patient who is ill with a sore throat.

Mr. Vachell. I think you told my Lord that an inflamed or sore throat would in your opinion be indicative, I think you said, of diphtheria.

Mr. Justice Lush. I do not think the doctor went quite as far as that, did he ?—No, it would have been suggestion, I think ; I could not go further than that.

Mr. Vachell. If in addition to the sore throat you found that the patient has a blood-stained discharge from the nose, a highly offensive breath, headache and drowsiness, what do you say then ?—I should say that my suspicions would be very strongly confirmed.

What would be the proper treatment if you found all these things, the offensive breath, the peculiar discharge, and the red throat ; is there any treatment which you say that every reasonable doctor would apply in such circumstances ?—Assuming that the doctor had suspicions that it was diphtheria he should, in my opinion, have injected antitoxin.

He should, if he had suspicions, have injected antitoxin. Suppose he had not the suspicion, although these symptoms were occurring, what do you say then ?—Then I should think he should have proceeded to have had a bacteriological examination made.

Although he had not suspicions ?—Yes, even if he were not suspicious of diphtheria it would have been wiser with those symptoms.

He would, if not suspicious, have been wiser if he had a bacteriological examination. Could an ordinary careful and skilled doctor observe those symptoms and not have his suspicions aroused as to its being a case of diphtheria ?—I do not think he could.

Mr. Justice Lush. You do not think he could have avoided being suspicious ?—No. My reason for that is that diphtheria is the important throat illness which one should always be on the look-out for.

If in addition to the symptoms I have named membrane was visible from outside, what do you say then ?—I think that makes it a certainty that it is diphtheria.

Sir Edward Marshall Hall. If it is visible and is seen, because the mere fact that it is visible does not imply that it is seen.

Mr. Vachell. You may stop the child's mouth with your finger and prevent its being seen.

Sir Edward Marshall Hall. Or two fingers, so as to make it doubly certain you cannot.

Mr. Justice Lush. Is it possible to make a proper examination of the throat by merely inserting your two fingers ?

Mr. Vachell. One or two ?—I do not think it is really. It is a very clumsy method of procedure.

Mr. Justice Lush. My question was, do you think you could make a proper examination in such a way as that ?—I do not think you could be sure of making a proper examination.

Mr. Vachell. You saw at the post-mortem these raw patches, and those were visible from outside ?—Yes.

You also found this loose piece of membrane which you think had been taken lower down on to the top of the lungs ?—Yes.

Did you form an opinion as to where that loose piece came from ?—I thought it came from the inflamed patches in the throat.

If that was where that loose piece had been in situ, that is in the place where it originally grew, does it follow that that would be visible from outside ?—It would have been visible from outside.

Mr. Justice Lush. What would that follow from ?

Mr. Vachell. The doctor sees the raw patches where membrane has been.

Mr. Justice Lush. And if the membrane comes from that patch, and you can see the patch, you could see the membrane.

Mr. Vachell. Yes, that is what it really comes to. I may have put a question too many on it, but that is what it is. Then you have paid some little attention, have you, in the way of research to this question of vomiting, as to what that is a sign of ?—Yes.

You have consulted the authorities ?—Yes.

Is Osler one of the recognised authorities ?—Yes.

And, I suppose, one of the most modern ?—Yes.

Was that one you consulted or not ?—Yes.

And from what you have seen there is there anything to alter your view, that vomiting does not necessarily play a part in pneumonia ?—There is nothing.

The right lung, I gather, did just float ?—Yes.

That means just awash ?—Just awash.

The water just on the top of it ?—Very nearly the same specific gravity as water.

But you made no microscopical examination ?—No.

Without a microscopical examination do you feel able to say with certainty whether this was lobar or lobular ?

Sir Edward Marshall Hall. He has said it. Is that a proper question to his own witness in re-examination ? The gentleman has already said that it was lobar.

Mr. Vachell. I want to know.

Mr. Justice Lush. I think it is a fair question.—I have already expressed my opinion, that it was a lobar pneumonia. I must confess you cannot be absolutely certain without microscopical examination.

Mr. Vachell. I think you told us you made no such examination ?—That is so.

As to the condition of the heart, you have spoken to, you made no microscopical examination there ?—No.

And is it possible without microscopical examination to give anything like an exhaustive opinion on the condition of the heart ?—No, it might have been in the early stage of fatty degeneration without showing any signs.

The early stage of fatty degeneration you would want a microscope to detect ?—Yes.

You have spoken about one swab that you examined, which I think my friend Sir Edward accepts as being the swab taken from Leonard's throat ?

Sir Edward Marshall Hall. Said to be taken from Leonard's throat.

Mr. Vachell. Very well, said to be ; I do not want to pin you to anything. After three weeks from the first seizure by diphtheria, if the membrane has passed away, do you always find on bacteriological examination signs of this Klebs-Loeffler ?—The bacillus is often absent after three weeks.

In an undoubted case ?—In an undoubted case.

Of diphtheria ?—Yes.

Mr. Justice Lush. How soon after the throat is examined and found to be suspicious ought you to inject the antitoxin or, to put it in another way, is the injection of antitoxin effective if you allow, say, five or six days to elapse ?—The earlier it is given the more effective it is.

No doubt, but is there any date at which you could say it is too late, and that you have let the time go by ?—Yes, after five or six days it is of very slight efficacy.

Then if a child was suffering from diphtheria without showing obvious signs for, we will say, five or six days, although the doctor ought to have discovered the diphtheria at the end of five or six days, the discovery will not help you much, because it will be useless to inject antitoxin ?—As far as the question of antitoxin is concerned, but there are all sorts of general treatment which would be adopted.

But the antitoxin, at any rate, would be eliminated ?—Quite so, to a very large extent.

DR. RONALD BRIERS BERRY, *sworn.*

Examined by Mr. Micklethwait.

Are you the Medical Officer of Health for this City ?—Yes.

Are you also Superintendent of the Isolation Hospital at Over ?—Yes.

And as such do you see all the diphtheria patients that come in there ?—Yes.

Are you also the officer to whom notifications of diphtheria and, I suppose, other infectious diseases, are made ?—Yes.

With regard to diphtheria, is it a difficult disease to diagnose ?—In some cases no, in some cases yes.

Are there any signs which indicate the presence of it ?—Certainly.

Tell us, shortly, the usual indication of diphtheria ?—The first indication is a sore throat, and on examination of the throat you will find a patch of membrane there. In addition to that, you frequently get a discharge from the nose of a thick pussy character, sometimes tinged with blood. In many cases you get some enlargement of the glands at the angle of the jaw.

Mr. Justice Lush. In many cases ?—In some cases ; frequently ; not in all cases. In addition, there are certain general signs which are a sign of the poisoning which is taking place. These consist of pallor, frequently drowsiness, and very marked rapidity of the pulse.

Mr. Micklethwait. Is there any characteristic smell ?—Very frequently.

Is the smell a bad smell ?—Yes.

Is there anything peculiar about it, as regards diphtheria, as compared with anything else ?—Of course, I cannot describe the smell, except I would say in many cases it is characteristic. You get it in diphtheritic cases, and not in others. Skilled people can often tell whether a diphtheritic case is such almost by the smell alone.

Is it a smell of the breath ?—Yes, through the breath.

With regard to vomiting, is that a common indication of diphtheria at any stage ?—It is an indication at a later stage of a very serious import ; sometimes you get it in cases about the eighth or ninth day, and sometimes earlier, and then you look very seriously on such cases. It makes the prognosis very bad.

We have heard that the method of dealing with diphtheria is by the antitoxin treatment ?—Yes.

That is the ordinary regular method ?—Yes.

Do you agree with the last witness with regard to the length of time in which it ought to be done, five or six days ?—Yes ; I would not say I would not give it after that ; I should give it, but I should not hope to get very much benefit from it.

In the case where a careful doctor, after examining a patient, finds the symptoms present which you have mentioned, what is the proper course, in your opinion, for the doctor to take ?—If he thinks it is diphtheria his first step should be either to get the child rapidly removed to hospital, or to give antitoxin himself. If he is doubtful it is diphtheria, but has a very strong suspicion, then he should carry out the same steps, and take a swab as well. If his suspicion is not very strong, he should take a swab, and wait for the result of that before he takes any other steps.

Mr. Justice Lush. You say if it is a doubtful case, and there is nothing to indicate diphtheria, he should——?—He might take a swab, and wait for the result of that, but if there is the slightest suspicion I do not think he is justified in waiting.

Ought he to be suspicious of it. How ought he to be even more than suspicious if he sees the symptoms put to you, the drowsiness, the offensive breath, and the discharge with blood in it. Can you understand anyone not having his suspicions aroused by seeing all those symptoms ?—I think he should have diagnosed the condition, and more than suspected it if those symptoms were present.

Mr. Micklethwait. We know that this disease is extremely infectious ?—Yes.

I suppose the whole object of sending them to the hospital is to get them away from infection ?—That is one object ; the other is to give them satisfactory treatment.

Sir Edward Marshall Hall. Is it infectious, or contagious ?—Both.

Mr. Micklethwait. Did you receive a notification in the case of the little girl Nellie, who died ?—It was received in the office on the 11th.

Did you receive a notification in respect of Hilda ?—Yes.

And in respect of a little girl named Olive Cornock ?—Yes.

And also a little girl named Gladys ?—I did not receive the usual notification of an infectious disease in that case.

First of all with regard to Hilda, was she sent to your hospital ?—Yes.

Was she under your charge ?—Yes.

From what was she suffering ?—Diphtheria.

Mr. Justice Lush. That raises the same question again. Hilda was ?—Yes.

Have you had an opportunity of ascertaining whether, in your client's opinion, Hilda was suffering from diphtheria ?

Sir Edward Marshall Hall. I do not think he ever saw Hilda at all.

Mr. Vachell. The materiality as far as Hilda is concerned is on the question as to whether Nellie was suffering from diphtheria. Hilda comes from the same household.

Mr. Justice Lush. I do not overlook that, but when was that child sent into the hospital ?—August 11th.

Then at that time the investigation of the case against Dr. Hadwen was really proceeding.

Mr. Vachell. No, my Lord. She died on the Sunday.

Mr. Justice Lush. Early on the Sunday morning, and the suspicion at all events of neglect had already arisen, had not it, with regard to Dr. Hadwen ?

Sir Edward Marshall Hall. On the 11th Dr. Washbourn had received intimation of the necessity of a post-mortem examination.

Mr. Justice Lush. I did not want to put it higher than it should be put. All I am saying is it is a pity Dr. Hadwen had not an opportunity of satisfying himself about Hilda, but I did not know whether you wanted to proceed in detail with Hilda's case.

Mr. Vachell. I will say no more about Hilda, but now there is another child Dr. Hadwen did see whom we are going to ask about.

Mr. Micklethwait. Was the little girl, Gladys Burnham, brought to the hospital ?—Yes.

On which day ?—The 12th, the Tuesday.

What was she suffering from ?—She was in a very poor condition and she had a very nasty thick discharge from the nose with crusts of blood on the edges of the nose.

What was she suffering from ?—I formed the opinion she was suffering from the late stages of diphtheria.

Is she still in the hospital ?—No, she has been discharged.

Then was the little girl, Olive Cornock, brought to the hospital ?—Yes.

On what date ?—The 12th, I think.

What was she suffering from ?—Diphtheria.

Is she there now or has she been discharged ?—Discharged.

Cross-examined by Sir Edward Marshall Hall.

You are Medical Officer of Health for this city are you not ?—Yes.

Have you yourself had much personal practice in diphtheria ?—Yes.

Before you were officially appointed ?—Yes, and I have considered it since I came.

Do you practise privately as well as being medical officer ?—No.

It is a whole-time appointment ?—Yes.

In the case of the child Gladys I think Dr. Colquhoun saw her ?—Yes.

And he reported it as a condition that might be diphtheria ?—Yes.

And it did turn out to be the last stages, the later symptoms of an old diphtheria ?—Yes, a late stage of diphtheria.

Do you mean to suggest that drowsiness is only consistent with diphtheria in the case of a sore throat ?—No.

Taking the ordinary sore throat, if I might say so, the common sore throat which is not diphtheritic or anything of the kind, is not that one of the most lowering complaints you could suffer from ?—I do not look upon drowsiness as due to a lowering condition ; it is due to toxæmia.

Without toxæmia you get drowsiness ?—It is not classed as drowsiness.

Do you mean to say if you feel inclined to go to sleep in Court that is toxæmia ?—No, I attribute toxæmia to poisoning.

Have you ever had sore throat yourself ?—Yes.

Do not you feel drowsy ?—I do not think so, not with a throat of that kind.

It is not the sort of occasion you would choose to make a speech ?—No.

And it is a condition in which you would rather not talk to the people who come to see you ?—No.

Now let us deal with the offensive breath ?—There is a peculiar characteristic which you more or less expect.

If you have a peculiarly refined sense of smell, you can detect the offensive smell of diphtheria from the offensive smell generated by other sore throats ?—If you have sufficient experience.

Do you know Dr. Hadwen ?—No.

Never met him ?—No.

You know nothing of his practice or his qualifications at all ?—Very roughly.

You know he is a well-qualified man, do not you ?—Yes.

He has been 35 years in practice here, has he not ?—I take your word for that.

Do you suggest that the antitoxin treatment is always successful ?—No.

By no manner of means ?—It depends on the stage you get the disease.

Quite lately you have had a very bad instance of the failure of the antitoxin treatment, have you not ?—I do not want to give the name in open Court, but you might look at it if I write it down ?

Mr. JUSTICE LUSH. What is this name you are writing ?

Sir EDWARD MARSHALL HALL. I do not want to mention the name in open Court.

Mr. JUSTICE LUSH. What is the point of it then ?

Sir EDWARD MARSHALL HALL. I want to ask about this particular individual, we will call him A. B. to identify him. (To the Witness.) Do you know that particular case ? (Document handed to the Witness.)—Yes, I remember it now distinctly.

I want to particularly deal with this case. That was a case admitted on the 9th of August, 1924. There was a swab taken positive reaction, and it was admitted as a patient to the Over Isolation Hospital ?—I will take the dates from you.

Do you know that serum treatment was used for that child at all ?—Yes.

Mr. JUSTICE LUSH. Antitoxin ?—Yes.

Sir EDWARD MARSHALL HALL. On the 12th of September, that is a month and four days afterwards, was the child returned home as cured ?—Yes.

And five days afterwards, on the 17th, was the child found to be suffering from diphtheria, and also her brother ?—Yes.

And they were both brought back to the hospital ?—Yes.

And is the child still there ?—No.

But it was brought back again on the 17th of September, after it had been discharged as cured, and was kept in hospital up to quite recently ?—Yes, about three weeks.

So there is a very strong instance where antitoxin treatment at once failed ?—Not a bit.

Of course, that was done by the official authorities, and therefore, of course, there can be nothing wrong ?—No. The antitoxin cured the child, she became reinfected, and came back to the hospital.

Having had diphtheria, and being cured, she went back, and was reinfected with diphtheria within five days ; a very unlucky child ?—Very unlucky, and very unusual.

You heard the evidence of Dr. Washbourn, a gentleman for whom we all have the greatest respect ; you share it ?—Yes.

Would it be possible for you to say, upon the evidence that you have heard, what part pneumonia played in the death of this child ?

Mr. JUSTICE LUSH. Are you not content ; you have Dr. Washbourn's evidence.

Sir EDWARD MARSHALL HALL. I have also got it that he says the same thing.—As I stated before, I consider the pneumonia to be purely secondary to the diphtheria.

Did you say this : " It is not possible for me to say what part pneumonia played in this child's death " ?—There is also an addition, I think. I wish to qualify that.

You did say that. Then you certainly did add : " I regard the pneumonia as a sequela to diphtheria."—I cannot consider the pneumonia separate from the diphtheria ; that is the position I take up, that it is not a separate entity.

You cannot say whether she would have died of diphtheria minus pneumonia, or of pneumonia minus diphtheria ?—She died of diphtheria progressing through pneumonia to death. The thing is a natural progression, in my view.

Mr. JUSTICE LUSH. Without the pneumonia you cannot say that the child would have died ?—The pneumonia was part of the diphtheria.

Would you mind telling me, because I want to know if I am wrong, but I understood from Dr. Washbourn that without the pneumonia the child might never have died ?—I find it difficult to answer that question, because I consider the pneumonia as a development of the diphtheria.

That is really not the same thing as I was asking you ; I may have failed to put what I want.

Sir EDWARD MARSHALL HALL. If you are wrong in your diagnosis that the pneumonia was a sequela of the diphtheria, and if, in fact, the pneumonia was caused by the chill on the 7th, can you say that the diphtheria was the cause of death ?—No.

Mr. JUSTICE LUSH. That is what I meant ?—No, if you rule that out.

Re-examined by Mr. VACHELL.

Are you acquainted with the effect that antitoxin has had on the death-rate from diphtheria ?—Yes.

I do not know if you can give us the percentages, or whether I had better leave those for Sir William Willcox ?—I can only give them very roughly.

Sir EDWARD MARSHALL HALL. I thought you left it for Sir William. I did not touch it.

Mr. VACHELL. I will.

DR. EDWARD GRAHAM, *sworn.*

Sir EDWARD MARSHALL HALL. We have not had notice of this evidence.

Mr. MICKLETHWAIT. It is merely on this technical question about one of the swabs.

Mr. JUSTICE LUSH. Of course, I can allow it without notice.

Mr. MICKLETHWAIT. It is merely on this technical question about one of the swabs.

Sir EDWARD MARSHALL HALL. I do not raise any objection.

Mr. JUSTICE LUSH. I think I ought to allow it in any case.

Examined by Mr. MICKLETHWAIT.

What are your qualifications ? — Bachelor of Medicine and Bachelor of Surgery of Glasgow.

Did you attend a little girl, Hilda Burnham ?—Yes.

Was she taken ill while you were attending her ?—I was asked to see her. She was ill when I saw her, of course.

When did you first see her ?—On the 11th August.

And did you take a swab from her throat ?—Yes.

On what date ?—That date, on the 11th, the time I saw her.

And did you mark the swab ; did you mark the envelope, or whatever it was that was sent in ?—I simply put the full name and address, and sent it to the Medical Officer of Health.

Sir EDWARD MARSHALL HALL. The full name and address ?—Yes, her name and address.

Mr. MICKLETHWAIT. And you sent it to the Medical Officer of Health, Dr. Berry ?—Yes.

Cross-examined by Sir EDWARD MARSHALL HALL.

Did you put " Hilda Burnham " or " H. Burnham," or what ?—" Hilda," I think.

Then apparently that is not the one the doctor got because his was marked " Hilda Burnham," but never mind about that. Where was Hilda Burnham ill, at Mrs. Burnham's house ?—Yes.

And you were called in on the 11th ?—Yes.

Do you know that Dr. Ellis had been called in on the Saturday to attend to the other child ?—Yes.

And did you know that Dr. Hadwen had been previously attending the child before ?—They told me that when I arrived there.

So you were called in as a different doctor to Dr. Ellis. Had you ever attended them before ?—This girl I saw was a patient of mine.

Was she a panel patient of yours ?—Yes.

Was she in service then ?—She was about 18 years old. I think she was in service.

Does she live at home ?—I think so. She was ill at home, anyhow.

You are a very strong opponent of Dr. Hadwen, are you not ?—I do not think so.

Did you write that you would be ashamed to sit on any public body of which he was a member ?—Yes.

Sir Edward Marshall Hall. And you are chosen to give evidence with regard to another of these children.

Re-examined by Mr. Vachell.

Have you a club ?—No.

Are you the medical officer of some club ?—No.

How about Hilda ? How came you to attend her ?—She is a panel patient of mine.

How long had she been on your panel ?—I should say six months, or something like that.

SIR WILLIAM WILLCOX, *sworn.*

Examined by Mr. Vachell.

Are you a Knight Commander or Companion, is it, of the Order of the Indian Empire ?—Yes.

Companion of the Bath ?—Yes.

Companion of St. Michael and St. George ?—Yes.

Doctor of Medicine ?—Yes.

Fellow of the Royal College of Physicians ?—Yes.

Physician at St. Mary's Hospital, London ?—Yes.

Are you also an Assistant Physician to the London Fever Hospital ?—Yes.

At that hospital are there a large number of cases of diphtheria for attention ?—Yes.

And have you given considerable attention to that disease ?—Yes.

During the war were you Consulting Physician to the Army in Mesopotamia and the Dardanelles ?—Yes.

And there had you experience also of the treatment of this disease ?—Yes.

We are told that diphtheria is an infectious disease and contagious as well ?—Yes.

You agree with that ?—Quite.

What is the disease ; how does it originate ?—It is a disease caused by a microbe which was discovered in 1883 by Klebs and also by Loeffler, two independent scientists. It settles on a certain part of the body, often the throat or air-passages, and it grows there, and it produces an inflammation locally. Then there is the discharge which clots and a membrane forms which contains large numbers of this microbe and the microbes in the membrane produce a lot of powerful poison which is absorbed through the raw surface, and that causes the symptoms of the diphtheria, the general symptoms. So that the usual symptoms of diphtheria are headache and general pains, then there is the soreness of the throat where the membrane is, and the voice may be thick. Often the nose is affected, and if so, there is a discharge from the nose which is often slightly blood-stained, yellowish. The breath has a very offensive smell and the absorbed poison often causes drowsiness, great weakness, and vomiting. It is a powerful poison to the heart, and there is danger of death from heart failure during this disease.

Mr. Justice Lush. How soon does the vomiting come ?—There may be vomiting at the onset of the disease, and then it occurs later on when the disease becomes dangerous. It is a grave sign if it occurs after the first or second day, it means the powerful action of the poison on the vomiting centre in the brain. There is one other symptom I should mention, and that is that a not uncommon complication of severe cases is pneumonia.

Mr. Vachell. Before you pass away from the symptoms I should like you to tell us what the general appearance is of the membrane ?—It looks like dirty, yellowish-white wash-leather, but it is important to remember that you do not always get a large patch of membrane. Sometimes you may get little patches of exudation, little white patches comparatively small, but in a severe case you get a large patch of membrane.

Can the membrane become loose ?—Yes, it alters. It is a discharge from the body which, of course, changes. It changes in colour. It may become in severe cases black or it becomes dirtyish in colour and darker in colour, and then it separates off and leaves a raw surface.

Has diphtheria sometimes or at all times an effect upon the glands ?—Yes, the poison, assuming the throat is affected, is absorbed from the throat, and the little protective glands in the body, which are there for the purpose of filtering off poison which is absorbed, become enlarged, and you can feel them by carefully palpating or pressing the finger on them.

Is that something that is necessarily obvious without the palpation ?—No, in the very bad cases the glands are very enlarged, and in more than one case diphtheria has been mistaken for mumps, but in a moderately severe case there is some enlargement of the glands, but it might not be obvious to the naked eye. You would have to feel carefully to detect the enlargement.

What is the course that an ordinary prudent medical attendant should take if, when he is called in, he finds the patient suffering from some of these symptoms, the ones being thickness of utterance, sore throat, offensive breath, coloured discharge, and drowsiness ?—Coloured discharge from the nose ?

Yes, what do you say would be the proper and ordinary course for a reasonably careful medical man to take ?—After examining the patient and satisfying himself of the condition, a swab should certainly be taken, and if there is to his naked eye a reasonable suspicion that the case is diphtheria, that is if membrane or patches of exudation are visible in the throat, then it would be one's duty to give antitoxin there and then.

Without waiting for the result ?—Without waiting for the result of the bacteriological examination.

Mr. Justice Lush. Is that so common a treatment that you would say no reasonable or ordinary doctor would think of avoiding it, or is it only a treatment that most doctors would give ; I do not know how to better put the question I want to get answered ?—I would say it is the treatment which every doctor should give, that is, of course, unless it is too late for it to be given, and it is the treatment which is given in every case that goes to the Metropolitan Asylums Board hospitals and the other fever hospitals in London, assuming, of course, that there is a reasonable suspicion that the case is diphtheria, and if there is not, the bacteriological examination will tell you yes or no. One does not give the antitoxin as a rule after the sixth day, or it is not of so much value. One might give it in some cases, but it is not of such value after the sixth day.

Mr. Vachell. There was a point raised by Sir Edward Marshall Hall yesterday as to the effect of antitoxin treatment, and at my request he kindly left it for you to deal with, the suggestion being that the rate of mortality, I think, was higher before its introduction than since. Can you assist us there ?—The diphtheria antitoxin is one of the greatest discoveries of medicine, and it has reduced the mortality of diphtheria from 30 to 40 per cent., or even more.

Sir Edward Marshall Hall. Will you give us the figures on some official document for this ?—Yes, I have the Metropolitan Asylums Board report. It has reduced it down to 10 per cent. and under.

What is the date of that one ?—The 1911 Report of the Metropolitan Asylums Board.

I have 1923–24 ?—Yes, but 1923 has not got these curves in. I was asked to give it a long way back. I have 1923–24, but it has not got this curve. This is the curve. This is 1890 to 1893, before antitoxin. There the figure is 30 per cent., and it has dropped down since the introduction of antitoxin——

Mr. Justice Lush. To rather less than 10 per cent. ?—To rather less than 10 per cent. That is the latest curve that is given. I have the later report.

Does your own experience bear that out ?—Absolutely.

Mr. Vachell. Then there were the Registrar-General's returns referred to ; I think that is a different thing ?—Yes.

It was, indeed, on those figures that Sir Edward had something to say. What I want to know on that is the death-rate. What date is that ?—1923, page 35.

The death-rate from diphtheria, compared before 1893 and since, being about the date when antitoxin was first used ?—In 1895 it was first used in this country.

You have the figures there, have you ?—Yes. In 1893 the mortality from diphtheria was 389 per million in England and Wales.

Sir EDWARD MARSHALL HALL. What page are you reading from ?—Page 35.

Of the 1923 edition ?—Yes, and in 1923 it was 71 per million.

That is between one-fifth and one-sixth ?—That is so, it is under one-fifth of what it was.

Is that Table 6 ?—Yes.

Mr. JUSTICE LUSH. 389 against 71 ?

Sir EDWARD MARSHALL HALL. I have the 1924 book, the same table, and the figures are totally different. They are five years' figures, the figures I have got.

Mr. JUSTICE LUSH. Perhaps we had better wait.

Mr. VACHELL. You have heard all the evidence in this case, Sir William ?—Yes.

And, in addition to that, you read the Depositions, I think, before you came down to Gloucester ?—Yes.

You must, of course, for the purposes of an opinion assume that the facts are correct ?—Yes.

What do you say, in your judgment, was the cause of this child's death ?—Diphtheria and pneumonia.

First of all as to diphtheria, and the evidence that you have heard of the symptoms, do they all point to the child having suffered from diphtheria ?—Conclusively.

And strongly ?—I said conclusively.

Then arises a question on the pneumonia, the suggestion being that the pneumonia that the child suffered from was wholly independent ?

Sir EDWARD MARSHALL HALL. Not wholly independent.

Mr. VACHELL. Independent of the diphtheria. What conclusion do you come to upon that ?—I have no doubt but that the pneumonia was secondary to the diphtheria.

Now would you kindly give us your opinions ?—I have carefully listened to Dr. Washbourn's evidence as to his facts as to what he found at the post mortem, and he described it very clearly. Imagine that my fingers are tubes, and that they spread out in *that* way from the main tube *here*. He described that the whole of the bronchial tubes of the right lung were filled with diphtheritic membrane, some of which was adherent, and the opinion that he gave was that this membrane had formed in situ, and it had grown there, and it was that very part of the lung which was supplied by these infected bronchial tubes which was pneumonic, and, that being so, it appears clear to me that this pneumonia of the right lung was caused by the diphtheritic membrane, and poison in the bronchial tubes which supplied that identical part of the lung which was affected with pneumonia.

A point seems to have been raised about this pneumonia being unilateral, that, I suppose, means in one lung only ?—Yes.

What effect would that fact have upon your opinion ?—It would not have any effect in view of what was actually found. It is uncommon for this kind of pneumonia to be unilateral, but I have seen it occur in diphtheria.

Then comes the question of what sort of pneumonia it was ; lobar or lobular, and will you tell us what the symptoms of lobar pnuemonia are ?

Sir EDWARD MARSHALL HALL. Might he first say which he thinks it was ?

Mr. VACHELL. Yes, certainly ?—It is clear that in this case to the naked eye it was very difficult to say which it was, but in view of the condition of the bronchial tubes of the right lung I think that this was a massive, or very extensive bronchial pneumonia.

Sir EDWARD MARSHALL HALL. That is lobular ?—It is also called lobular.

Mr. JUSTICE LUSH. I wish you would reduce that to the terms of lobar and lobular ?—I do not like those terms myself very much. It should be lobular ; it is called lobular.

Mr. JUSTICE LUSH. It is only that we have worked in other terms of equation ?—I will restrict myself to that.

Mr. VACHELL. What, then, are the symptoms of lobular pneumonia ?—You mean the clinical symptoms, the symptoms during life ?

Yes.

Sir EDWARD MARSHALL HALL. Of lobar ?—Of lobar pneumonia the symptoms during life ? Its onset is very sudden, and the patient has what is called a rigor, or shivering fit, but in a child very often a convulsion occurs instead of the rigor, and the temperature will shoot up very high, often to 104, and there will be pains in the side, and cough ; the breathing is very rapid, and the child appears hot and flushed. It comes on very quickly, and it is a very dramatic change, the onset of lobar pneumonia.

Mr. JUSTICE LUSH. Would you tell me why it is called lobar, and why the other is called lobular ?—In most cases in lobar pneumonia you get the whole of one of the lungs involved, a large area, and in lobular pneumonia usually a little patch, perhaps the size of a marble, scattered through each lung, which you can see and feel by cutting the lung.

Is bronchial pneumonia always the subject of small patches ?—It is generally, but in some cases the small patches may be so numerous that they coalesce into one, and it is difficult to say whether it is lobar or lobular in certain cases.

Mr. VACHELL. Is vomiting a symptom of lobar pneumonia ?—No, it is not a common symptom ; in fact, it is not mentioned in the book which was referred to (Osler) as a symptom, but it is only fair for me to say that in children these symptoms are different from what they are in grown-up people, and although vomiting is not mentioned as a symptom, yet I have seen vomiting in children, and it may occur.

Mr. JUSTICE LUSH. In the case of lobar ?—Yes, it may occur, but it is not a common symptom, and if it does occur it would occur at the onset, within the first few hours.

Mr. VACHELL. Have you already mentioned whether vomiting is a symptom in diphtheria, and when it sets in ?—Yes, I have mentioned that. It may occur in the first day, or it may occur later on in the severe cases, and it is a dangerous symptom if it occurs late.

We have been told by Dr. Washbourn that on applying the floating test that the right lung was just awash. Does that assist you at all in coming to an opinion as to the nature of the pneumonia ?—It does to some extent. In lobar pneumonia, in the stage at which this is said to be, the lung would sink.

Mr. JUSTICE LUSH. After three days ?—I was rather going by the term Sir Edward used, red hepatisation. In red hepatisation it is the rule for the lung to sink. In lobular pneumonia the lung would usually float, or more commonly floats.

That is not a conclusive test ?—It is a rough test, but it is one which is always done in the post-mortem room. It is of value.

Mr. VACHELL. Can you express an opinion as to the probability of the child's going downstairs on the 7th of August having any effect upon her death, assisting in any way to her death ?—You mean as regards the pneumonia, do you ?

It would be in that way, if it was at all ?—In my opinion the going downstairs would not cause pneumonia such as was found in this case. Going downstairs, of course, would be harmful in this stage of diphtheria.

Mr. Justice Lush. Why would it not, in your opinion, cause such pneumonia as this ?—The lobar pneumonia is different in its appearance from this, in my judgment.

Then does it come to this : Have you assumed, or inferred, that this was lobular, and not lobar ?—Massive lobular.

Yes, one mass of infection. Then you do not think that the going downstairs could set up a chill which would account for that sort of infection ?—I do not, because one sees, or one has had described, the very cause of this pneumonia, the bronchial tubes all filled up with membrane.

Mr. Vachell. Is lobar pneumonia ever secondary to diphtheria ?—It is in rare cases, under 1 per cent. It is a complication of it.

Mr. Justice Lush. In practically 1 per cent ?—In less than 1 per cent. lobar pneumonia is a complication of diphtheria.

That is to say, practically one may almost eliminate the cases in which lobar pneumonia is a sequela of diphtheria ?—Bronchial pneumonia is very much more common than lobar pneumonia.

Mr. Vachell. For making a conclusive test as between lobar and lobular, is the microscope of assistance ?—Yes, the microscope is the only certain test where you have a condition such as was here, where you have such extensive lobular pneumonia as to involve the whole of the lung, the whole of the lobe.

Do I apprehend you aright when I say that the chief support of your opinion is the fact that there was found in the tube the actual diphtheria itself ?—Yes.

Going down into the vessels ?—Yes, that is one reason for my opinion. Another reason is the clinical history of the case. The pneumonia in this case appeared to come on insidiously.

Sir Edward Marshall Hall. Did it ?—I rather gathered that from what I heard. There was no dramatic sudden change, as would have been likely to have occurred if it had been lobar pneumonia.

Mr. Vachell. We have heard that Dr. Ellis used the exploring needle or a syringe, a few hours before the child's death.

Sir Edward Marshall Hall. Not a few hours, an hour.

Mr. Vachell. Very well. I do not quite know what the suggestion against Dr. Ellis was.

Sir Edward Marshall Hall. I do not make a suggestion, but you cannot eliminate it. It might have altered the position. It was a question of minutes.

Mr. Vachell. Would you give us your opinion as to whether Dr. Ellis did wrong ?

Sir Edward Marshall Hall. Is that anything to do with this case ?

Mr. Justice Lush. Have we really to trouble about that ?

Sir Edward Marshall Hall. No, my Lord, not at all.

Mr. Vachell. The comment my learned friend made when he got Dr. Ellis's answer left the impression on my mind, at any rate, that he was going to suggest that Dr. Ellis assisted in some way or other the child's death.

Mr. Justice Lush. I did not gather that.

Mr. Vachell. I should like to have it put at rest, at any rate What do you say ?—It was quite a proper thing to do because it is very difficult in children from the clinical examination to be certain whether there is solid lung or whether there is fluid there. Sometimes there is what is called empyema, that is a large collection of pus over the lung, and that is why it is proper to put a needle into the chest to make quite certain. The risk of doing so is infinitesimal if carefully done.

What opinion do you give as to the degree of care and attention that this case required by a medical man who was in charge of it ? You have told us about the swab.—Adequate care and attention were necessary to make the diagnosis and to take the necessary steps.

And in the course of the disease there were attendances, we know, on the 1st, 4th, 6th, and 9th. With what frequency should a case described as you have heard by the witnesses have been visited ?—A case like this should certainly have been visited daily ; it was a serious case.

Mr. Justice Lush. I do not want to put the question in an offensive form, but was it giving the child a fair prospect of recovery, assuming the symptoms there which you have spoken to, to only visit her on the 1st, 4th, and 6th ?—No, it was not.

Mr. Vachell. We heard that Dr. Hadwen prescribed hot water and vinegar gargle for one thing and a painting with glycerine with the aid of a feather. What do you say as to the value of those ?—Will you give them separately, please ?

Take the vinegar gargle first.—The vinegar and water would do no good ; I do not think it would do any harm.

Mr. Justice Lush. That is a satisfaction ; you cannot speak better of it than that.

Mr. Vachell. Then as to the glycerine painting ?—The glycerine, if pure glycerine, has slightly antiseptic properties. It might do a little good, but it would do no harm.

Mr. Justice Lush. Do good to what ?—To the throat.

To the diphtheritic patient ?—It would be useless for a diphtheria patient. I was assuming the treatment of the soreness of the throat.

I thought you were rather saying in a diphtheritic case ?—It would be useless in a diphtheritic case. The only treatment which is of any value is the antitoxin treatment and general hygienic nursing measures.

Mr. Vachell. Is the position of the patient in bed something to be attended to ?—Most important. There is danger of sudden death in diphtheria owing to the action of the poison on the heart muscle. Many a child has dropped back dead through sitting up in bed with diphtheria.

It is suggested that a quarter of an hour before death it is very improbable the child would have had sufficient vitality to have thrown off this piece of membrane ; what do you say as to that ?—I entirely disagree with that, because at the approach of death often convulsive movements occur.

Sir Edward Marshall Hall. There is no evidence of a convulsive movement here. Will you give him the words of the witnesses ?—Often vomiting occurs or the straining at vomiting as death approaches ; I have seen it many times.

Mr. Vachell. The examination of the throat, I suppose everybody knows, is generally aided by something to depress the tongue ?—Yes, unless that is done one cannot see the tonsils. The tonsils are down *here*. Unless the tongue is depressed all you see is the roof of the mouth.

What do you say to the use of the finger of an adult, the doctor himself, in the mouth of a child who was 10 years old. What do you say to that being used for depressing the tongue ?—I should say it was not a proper way of examining.

Mr. Justice Lush. Would it prevent the doctor properly examining ?—If the finger is put in the mouth—it depends, of course, on the size of the finger—it obstructs the view of the throat.

Sir Edward Marshall Hall. It depends also how much of the finger.

Mr. Vachell. I have no doubt.

Mr. Justice Lush. Ought the pulse to be taken ?—Yes.

And the temperature ?—Yes.

What do you say assuming it is true that neither was taken ; only on that assumption ?—One naturally takes the pulse ; it need not take five seconds to take it ; just a few seconds to feel the pulse.

Mr. Vachell. Should it be taken every time ?—The taking of the pulse need not occupy a long time, a few seconds.

Ought the temperature to be taken on each visit ?—It should be taken certainly at the first visit, and in the case of a doctor with a very busy practice one could hardly expect the temperature to be taken on every visit; it depends entirely on the condition of the patient on a particular day.

Mr. JUSTICE LUSH. Imagine a case of diphtheria when a child has not been seen for three days?—Yes, then it would be wise for the temperature to be taken; it should be taken.

You said a child has been known to fall dead from being in a wrong posture in bed?—From sitting up in bed.

If the child is suffering from a severe attack of diphtheria after seven days, eight days, indeed I think it is nine days, would not you expect going downstairs, walking with her bare feet on a tiled floor, drinking water, and coming up again, to produce a much more serious and rapid condition?—Not necessarily.

Sitting in a wrong posture may account for death. The thing this child did seemed such an extremely dangerous thing?—It was a dangerous thing, but it would not leave after-effects because with the heart in a condition of fatty degeneration it is liable to suddenly stop, and if it does not suddenly stop probably the danger has passed. It does not leave any progressive harm.

Mr. VACHELL. Could the fact of degeneration be discovered without the aid of a microscope?

Sir EDWARD MARSHALL HALL. After or before death?—In a case of this kind it would be necessary to have a microscope to discover it. You would not see it with the naked eye.

Mr. JUSTICE LUSH. What is that you would not see?—Fatty degeneration of the heart.

(Adjourned for a short time.)

Mr. JUSTICE LUSH. Mr. Vachell, I want you and Sir Edward to look, if you will, at that case you quoted, because as at present advised I shall act upon the ruling of the Court of Crown Cases Reserved.

Sir EDWARD MARSHALL HALL. 8 Queen's Bench Division.

Mr. JUSTICE LUSH. I thought you might like to know in case you have not seen it. You do not know of any case in which that has been commented on. It is a very important case.

Sir EDWARD MARSHALL HALL. No, I do not. I know of no authority questioning Mawbie.

Mr. JUSTICE LUSH. Neither do I.

Mr. VACHELL. (To the Witness.) I want you to consider the effect of the diphtheria on this child from this point of view. Supposing that this pneumonia, whether it is lobar or lobular, was independent in the first instance of the diphtheria, that she got it when she went downstairs that day. Would the fact that she was already suffering from diphtheria, and that diphtheria had been neglected in treatment by the doctor, in your opinion shorten or prejudice her chances of recovery?—Undoubtedly.

In what way?—The weakness and debilitating effect of the diphtheria would greatly diminish the resistance of the little girl to the pneumonia.

However caused?—However caused.

If the diphtheria had received adequate treatment would that have lessened the chance of her falling a victim to the pneumonia?—Very greatly.

Cross-examined by Sir EDWARD MARSHALL HALL.

Have you by any chance had a consultation with my learned friends during the adjournment?—No, I have not seen them.

I did not know whether that long question was what we call a question you wanted to be asked?—No, I have not seen them.

Not that there would have been anything irregular; it would have been perfectly proper. I see by the qualifications and the lists of distinctions my learned friend has read out that you have practically received every honour that you can practically receive short of a peerage, so you are a man of very high position and very skilled in your profession.

Mr. VACHELL. He has not answered that question.

Sir EDWARD MARSHALL HALL. When were you first called in by the Director of Public Prosecutions in this case?—A few days before—I can give you the exact date—the magisterial proceedings.

That was a day or two before the 2nd October?—If you will allow me, I will give you the exact date.

Very well, you shall?—On September 18th I received the depositions.

At that time the Coroner's depositions had been taken and their verdict returned, had it not?—Yes, they were sent to me.

And the magisterial depositions had not been taken?—No.

The magisterial hearing was in fact pending?—Yes.

And they did in fact come on on the 2nd October?—Yes.

May I take it that you are the official adviser to the Home Office?—Yes.

At the present time?—Yes.

And your private practice, I take it, is confined almost entirely to consulting practice, where you are called in by some other medical man as a rule?—Yes, that is so, and, of course, I spend a great deal of time at hospital work.

But you do not lay yourself out to see patients in the first instance without an invitation of a medical man?—No.

Have you had much personal experience in the early diagnosis of diphtheria, I mean before it has been already diagnosed by somebody else?—Yes, I have.

In the old days when I take it you were in practice, before you did your official work?—Yes, and in hospital practice one sees a lot of throat cases.

But you would see those after the house physician or surgeon had sent them?—They would come up to the out-patient department and they would be seen by me first.

You mean you would get people coming to you with early symptoms of diphtheria which had not been diagnosed by any independent medical man?—Yes.

Do you say that diphtheria is a less deadly disease now than it was?—Yes, it is much.

I was asked to let you have and I let you have during the interval this copy of the statistical review, the Registrar-General's report of 1924?—1923 it is.

I have 1924?—Excuse me, it is 1923. The date is 1923 and mine is the same one as yours. It is for the year 1923.

Page 35 is the one I am referring to. I am quite sure there must be some way of reconciling these figures, but I did not hear the figures you read out. Does the fifth column of that book purport to be the annual death-rates from the principal epidemic or general diseases from 1838 to 1923?—Yes.

Is it worked out in periods of five years?—Yes.

There are columns for every disease, small-pox, measles, scarlet fever, diphtheria, diphtheria and croup, whooping-cough, tuberculosis, tuberculosis of the respiratory system, and cancer?—Yes.

Incidentally I see the last one is appalling. Have you taken diphtheria and diphtheria with croup altogether as one?—Yes.

If you take diphtheria and diphtheria with croup you get a reduction; is that what you mean?—Yes.

In 1891 to 1895 the total of diphtheria of all ages was 576 per million; is that right?—I do not add them together, they are taken separately; I mean the diphtheria and croup includes the diphtheria, the preceding one. Croup is a particular type of diphtheria.

Do you mean to say the figure in the fifth column includes the figure in the fourth column?—Yes, it does; you will find it a little more than the one. If you look at the lowest line on the page for 1923 you will see that they are the same less 71. Croup is laryngeal diphtheria and in the old days it was called croup. Nowadays we call it laryngeal diphtheria.

Do you mean from that we are really to exclude the fourth column altogether?—The fifth column is the fourth column plus membranous croup.

Then what is the good of putting in the fourth column at all ?—Because in the old days before the diphtheria bacillus was discovered, the term membranous croup was used and that was really diphtheria and the Registrar-General in his returns includes membranous croup with the diphtheria, in order to give the total cases of diphtheria. I assure you that is so.

The figures I was dealing with, diphtheria as apart from diphtheria with croup, the figures for 1920, that is the last five years, are more than they were in 1871–1875, much more ; 121 and 142. Now take column 4 ?—If you will allow me I can explain that. The diphtheria bacillus was not discovered until after this time. It was discovered in 1883 and therefore before the diphtheria bacillus was discovered, it is obvious that cases that were notified as diphtheria were very much smaller. If you take the time since the diphtheria bacillus has been discovered, you will see there is a steady diminution and that is shown by all the figures given here.

When was the inoculation first practised ?—1895. Will you take the figures I read out ?

1895. What figure do you read out for that ? —The figure along that red line.

You have the single years ?—They are the single years and the quinquennial years show the same thing.

In 1895 it was 313 ?—And now it is 71.

But there are no returns for 1921–22 ?—Yes, I think so.

Will you just look at that. If you are right in saying that that column includes the preceding column, what do they mean by putting " ? ? " in 1921–22. Look at the bottom. I am not dealing with the years. It is the fifth column at the bottom. If your contention is that the fifth column includes the fourth column, why does the fourth column say 126 and the fifth column merely " ? " for 1921 ? They say " Deaths from diphtheria 126 ; deaths from diphtheria with croup none ? " and yet you say they are included. Look down at the bottom of the column where the deaths from diphtheria are shown as 126. Then you say diphtheria with croup includes diphtheria and is simply the addition ?—Yes.

But there they have put " ? ? " ?—Probably there were one or two doubtful cases.

Then they would have put down 126 in that column and they would put 107 in the next column ? —Apparently the Registrar-General was not certain from his figures what he should put there.

That is quite obvious, you see, and under the age of 15 in the collateral page they are the same thing. He does not include the previous figure ?— Which year is that ?

1921–22 ?—He puts the " ? " there. I do not know why he does that, but I can assure you, because I have had great experience of these figures, that the diphtheria and membranous croup are the diphtheria plus the cases that are notified as croup.

I will accept your explanation, but it is not very obvious to the casual observer of this book ?— Statistics are always puzzling.

I think they are intended to be puzzling. That is your evidence, that there is a steady reduction ?— A steady reduction, 500 per cent. in that year I gave.

Now here we have the annual report of the Metropolitan Asylums Board for 1923 and 1924 at page 86, Table 18 ?—I have the year before.

Look at Table 18 : " Summary of cases admitted with mistaken diagnoses during 1923 and deaths occurring amongst those cases." That deals with the Brook Hospital, Eastern Hospital, Great Northern Hospital, North-Western Hospital, North-Eastern Hospital, South-Western Hospital, and Western Hospital. Those are the main hospitals ?—Yes, and there is a total.

What is your total ?—2021.

There were 2021 wrong diagnoses of diphtheria admitted to those hospitals. Out of those, how many died in the London area ?—77.

And 2000 odd were admitted on a mistaken diagnosis ?

Mr. Justice Lush. I am afraid I do not quite understand it. What does it mean, that 2000 people were thought to have diphtheria when they had got something else ?

Sir Edward Marshall Hall. Yes, that is what I contend it means.

Mr. Justice Lush. What does it mean ? A mistaken diagnosis ?

Sir Edward Marshall Hall. " Summary of cases admitted with a mistaken diagnosis during 1922 and deaths occurring amongst those cases," and they give you diphtheria or membranous croup, so as to include anything, and I am told it is over 2000 and there were 70 deaths.

Mr. Justice Lush. Does this mean that 2000 people were thought to have diphtheria when they had not or thought not to have it when they had it, or both ?—It is this : These figures are for the London hospitals, and, as everyone knows, London is very overcrowded in the poorer districts, and those are the cases that are sent to the hospitals because the doctor is suspicious of diphtheria. He dare not wait for a swab to be taken, because if he did numbers of other children would become infected. He sends them to the hospital. It is hardly fair to say they are cases of mistaken diagnoses. They are cases of suspicious diagnoses, and a diagnosis is made at the hospital.

Mr. Justice Lush. You mean cases, many of them sent from over-caution ?—Cases of bad throat where diphtheria is suspected, and when the bacteriological examination is made it is found negative.

Sir Edward Marshall Hall. But the Registrar-General, who publishes the Report, describes them as mistaken diagnoses of diphtheria ?

Mr. Justice Lush. Yes, that is really what Sir William means.

Sir Edward Marshall Hall. In the next year the numbers were 1985, and 36 deaths out of those. That is to say, 1985 people were sent in as suffering from diphtheria, if you like, because some were only suspected, but of them 1985 were not suffering from diphtheria, and of those 36 died ?—If those mistakes were not made the amount of diphtheria in London would be greatly in excess of what it is. It is for the sake of the public health.

Mr. Justice Lush. Because doctors would keep people away who really had diphtheria ?—They would keep them, and they would infect others.

Sir Edward Marshall Hall. You know Sir George Newman ?—Yes.

His Report is of great value ?—I have worked with him.

I have the Report here on the state of the public health for the year 1921, and this is from Sir George Newman's Report on this matter at page 55 : " It seems likely that part, at any rate, of the increase has been attributable to the notification of diphtheria in cases of mild illness occurring among contacts in institutions or homes." Then it goes on : " Apart from the fact of contact, or the receipt of a positive report on the examination of throat swabs, notified cases in addition have sometimes found persons not suffering from illness at all, but who, on the strength of the examination of the swab, have been diagnosed as diphtheria carriers " ?—Perfectly true. Sir George Newman is trying to explain away the frequency of occurrence of diphtheria, and, as he points out, some people are over-cautious. They notify diphtheria because there is bacillus in the throat, but no illness. That is not diphtheria. Diphtheria is the illness of diphtheria, plus the Klebs-Loeffler bacillus, and the figures given for diphtheria, as Sir George Newman says, may be a little high, because some doctors are over-cautious, and have notified cases where there has only been a bacillus in the throat, and no illness. Others, on the other hand, have notified cases of people who have been in contact with diphtheria, and have, perhaps, got influenza.

Why should not that same argument apply to the Registrar-General's Return ; why should it not include in the death-rate of diphtheria cases, diphtheria cases which are not diphtheria cases at all ?—He would include them if the death certificates said diphtheria, because he is guided entirely by the certificates he gets. He knows nothing about the cases.

Do not you think those figures, especially the mistaken diagnoses of 2000 in one year, and practically 2000 in the next year, and a remark like that of Sir George Newman's in the public health volume, are very likely to affect the mind of a man who is practising in a local town, and who is most strongly prejudiced against any form of inoculation ?—I do not think they should. I think one should read the statistics, and take a commonsense view of them ; they are perfectly explicable and one can understand them.

When you were called in you had the material at your disposal you have told us of. When did you first meet Dr. Washbourn ?—On the night before the hearing at the Magistrates' Court.

You have read, of course, the Coroner's depositions. You probably heard Dr. Washbourn give his evidence before the magistrates ?—Yes, I did.

Did you notice that whereas before the Coroner he was positive as to two things, that it was lobar pneumonia, and that the heart was normal, before the Magistrates he weakened on both these points, and said he might be mistaken as to whether it was lobar or lobular, and he agreed that it was difficult to diagnose the condition of the heart without a microscopical examination ; you noticed that ?—I did not notice it. I read Dr. Washbourn's evidence before the Coroner's Court, and I think it was identical with what he gave before the Magistrates' Court.

Do you ?—In the cross-examination and re-examination, I think in the Coroner's Court, I believe Dr. Washbourn explained fully his views about the pneumonia.

Do you agree with this ? I am reading now from the evidence given by Dr. Washbourn this morning in this Court, and you heard it : " The child may have contracted a chill by going downstairs on the 7th of August, which chill might have developed into pneumonia." Do you agree with that, yes or no ; it is quite simple ?—I agree with that in the abstract.

What about the concrete ?—I do not think this pneumonia was due to chill.

He is dealing with the pneumonia that he found ?—Yes, that is what I mean.

He is dealing with the pneumonia he found, and which he has admitted in Court this morning was lobar pneumonia of two or three days duration, and he says the child may have contracted a chill by going downstairs on the 7th of August, which chill might have developed into pneumonia ; that is that pneumonia. Do you agree with that ?—No, I do not.

Then he said, " I think the child had the pneumonia which I should expect to find following a chill " ; do you agree with that ?—No.

Do you agree with this : " The pneumonia I found was consistent with having been contracted two or three days before death " ?—That might have been so.

" The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill " ; do you agree with that ?—No, I do not.

" The pneumonia was enough by itself to cause death. It might have resulted from a chill, which might have been contracted when the child walked downstairs " ; do you agree with that ?—There are several questions involved in that.

I am now reading from what he said before the Coroner, of which you were furnished with a copy ?—In that statement there are three or four questions.

" The pneumonia was enough by itself to cause death " ; do you agree with that ?—Yes.

" It might have resulted from a chill, which might have been contracted when the child walked downstairs " ?—No, I do not agree with that.

Before the Coroner he gave the same answer : " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill " ?—I do not agree with that.

It is only fair to Dr. Washbourn to read one thing else he said : " I do not think the chill was the cause of the pneumonia, because of the presence of adherent membrane in the bronchial tubes. It is a reasonable apprehension that diphtheria might result in pneumonia. It is not possible to say for certain whether the child died from pneumonia, or not," and it was upon that that Mr. Clements put the question, and got this answer : " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill," and then, in answer to Mr. Haddock, who was representing the relatives : " It is not the usual form of pneumonia to follow diphtheria." Those are express opinions of Dr. Washbourn, and I am afraid you do not agree with them ?—I am sorry, but I only give you my opinion from experience.

Did you point out to the Treasury officials that you did not agree with Dr. Washbourn's evidence ?—I sent a report on the case which expresses what I have already said in examination-in-chief.

I put it to you, do not you know that before the Magistrates Dr. Washbourn, who had been definite upon the subject of its being lobar pneumonia, was a little doubtful as to whether it might not have been lobular. Did not you find that. You were there when he gave his evidence ?—Yes, I was.

He contradicted himself before the Magistrates. He said, " I cannot say if the child would have died if she had not contracted pneumonia." Before the Magistrates he said, " It is impossible for me to say what part the pneumonia played in the child's death. I think the child had the pneumonia which I should expect to find following a chill. There is a possibility of the child having lobular pneumonia, but I cannot say for certain." Then he qualified that, " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill. I found no membrane in the throat." So there is a really serious difference of opinion between you and Dr. Washbourn ?—Yes, I do not agree with you that there was a difference of opinion between what Dr. Washbourn said at the Magistrates' Court and what he said at the Coroner's Court, if this is correct.

He got as far as this before the Magistrates, that he gave this answer which I have just read out, " There is a possibility of the child having lobular pneumonia, but I cannot say for certain."

Mr. Justice Lush. If Sir William Willcox is right, as I understand, he does agree that pneumonia may have been the cause of this child's death, it seems to me to follow that the one critical question on this part of the case is whether the pneumonia may reasonably have been caused by a chill or whether the only reasonable view is that it was a sequela of the diphtheria.

Sir Edward Marshall Hall. Then my learned friends are in this serious difficulty, which once arose before the late Mr. Justice Field in a case in which I was engaged years ago, where there were two medical men of great position and one said it was possible that death might have resulted from a certain cause, and the other said he did not think it was possible. Upon that, Mr. Justice Field ruled that there was no case to go to the Jury because it was the duty of the prosecution to prove affirmatively beyond any reasonable doubt that their case was right.

Mr. Justice Lush. I do not see how I can withdraw the case from the Jury.

Sir Edward Marshall Hall. I am not asking your Lordship to, but I am only putting to your Lordship the dilemma in which my friend is. Upon the evidence given by Dr. Washbourn before the Coroner as the result of his post-mortem examination, assuming it to be accurate, there was no fatty degeneration of the heart. Assuming Dr. Washbourn's evidence to be correct there was no fatty degeneration of the heart, there was unilateral pneumonia and lobar pneumonia ?—A pneumonia which in his opinion was lobar.

I say, assuming his evidence is correct, and further a pneumonia of the kind which he would expect to follow a chill. That was the evidence of Dr. Washbourn ?—It was, but he amplifies that.

Give me anything which was said before the Coroner ?—Page 27 ; that was before the Coroner. It was by Mr. Clements, " The pneumonia was enough by itself to cause death. It might have resulted from a chill which might have been contracted when the child walked downstairs. I do not think it was the cause of the pneumonia, because of the presence of adherent membrane in the bronchial tubes. It is a reasonable apprehension that diphtheria might result in pneumonia."

I have read all that. Go on " I did not examine the loose piece. It is not possible to say for certain whether the child died from pneumonia or not," and then the important part I called your attention to is later on. " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill. It is not the usual form to follow diphtheria." That was all at the inquest ?—He says that, but you have missed out the paragraph between those two.

That is his re-examination ?—Before he said that.

" Croupous pneumonia is not, in my opinion, accompanied by such a membrane as found in the bronchial tubes of the right lung." What is that? That is lobar pneumonia ?—That is lobar pneumonia. He says " The membrane I saw was of the typical wash-leather appearance " which Dr. Washbourn describes as typical of diphtheria. He says " The membrane found in the smallest bronchial tubes in a case of croupous membrane is entirely different from that found in diphtheria."

Sir EDWARD MARSHALL HALL. In spite of that he goes on to say " The pneumonia I found is the kind I expect to find when a child has contracted a sudden chill. It is not the usual form to follow diphtheria." Then the Jury asked him a question and he said, " Personally I do not think the child developed pneumonia by the walk downstairs, but she might have done." Dr. Ellis said exactly the same. " Nevertheless, it may have begun." You see when he was re-examined before the Magistrates he said this " In this case I found signs of diphtheria in the bronchial tubes and those signs were sufficient to cause extensive lobular pneumonia." That is what I meant ; he rather weakened on the question. He goes on, " I formed the opinion it was lobar pneumonia, but I am not sure the opinion I formed was correct."

Mr. VACHELL. Would you mind reading a little further ?

Sir EDWARD MARSHALL HALL. " Sufficient to cause extensive lobular pneumonia. I have formed the opinion it was lobar pneumonia, but I am not sure that that opinion was correct."—I do not like to express an opinion on my colleague's evidence.

Before he gave his evidence before the Magistrates, and after he had given his evidence before the Coroner, of course he had heard your weighty opinion on the subject ?—Probably.

And put in that most forcible way in which you can put an opinion ?—No.

You have had a great deal of experience in delivering lectures to students, have you not, and very successfully ?

Mr. JUSTICE LUSH. Do you recognise yourself in that description ?—I think Dr. Washbourn is senior to me. It is more likely he would have lectured to me than I to him.

Sir EDWARD MARSHALL HALL. I am not questioning your opinion. You have not a shadow of a doubt in your mind that this child died of diphtheria ?—No.

You are certain if you had been called in you would instantly have advised either an inoculation and a swab, or probably both ?—Yes, and I should have had the child removed to the Fever Hospital.

And in your opinion the cause of death was pneumonia which was consequent on diphtheria, and therefore the real cause of death was the two things together ?—Yes, I am clear about that.

You formed all these opinions upon the evidence of Mrs Burnham and the other people called as to the state of the child ?—Yes.

Did you happen to read the evidence which Dr. Hadwen had given at the inquest ?—Certainly, I read it with great care.

If his evidence is true he did not diagnose this as diphtheria ?—No. Dr. Hadwen stated that he regarded the case as an ulcerated throat, a follicular throat.

I do not think he used that term, but ulcerated tonsillitis. In order to come to the opinion you have expressed must you disregard Dr. Hadwen's evidence entirely ?—I do not disregard it.

Does anything in Dr. Hadwen's evidence help you to the opinion that he had in fact diagnosed diphtheria ?—I cannot imagine that Dr. Hadwen had diagnosed diphtheria, because if he had I am quite sure he would have taken proper steps.

That is the sort of answer I expected from a man in your position. Therefore you will as a medical man admit—we are dealing with probabilities—that in all human probability what Dr. Hadwen did, if this was a case of diphtheria, was that he failed to diagnose it as such ?—Yes.

Mr. JUSTICE LUSH. That is Sir William Willcox's view.

Sir EDWARD MARSHALL HALL. Quite. One of the symptoms of the ulcerated throat is a soreness of the throat itself, is it not ?—Yes.

That is to say, a soreness which is very evident on any attempt to swallow ?—Yes.

In diphtheria, on the other hand, that soreness is not necessarily present ?—In diphtheria often the pain is less.

If, in fact, there was a soreness of the throat in that common colloquial sense, that would be one possible symptom that might militate against a diphtheria diagnosis ?—No, I would not say that.

You will not go so far as that ?—No. It is perfectly true that often the most painful throats are not diphtheritic. If a throat is excessively painful it is very probable it is a quinsy, or some other form of tonsillitis, but with diphtheria there is a sore-throat, the throat is painful.

Dr. Hadwen is admittedly a very busy medical man, you have seen his qualifications ?—They are very good qualifications.

He is known as a man with peculiar views on any form of inoculation, is he not ?—I do not know ; I have not read his works.

Do you know he is an antivaccinationist ?—Yes, I do know that.

Just test, in your opinion, the view. Supposing a man who is moving about in the midst of an epidemic of small-pox as a doctor, coming in close contact with the cases, and supposing he never is vaccinated himself, would not that give you a strong indication as to whether his belief in non-vaccination was honest or not ?—Yes. Possibly he may have been vaccinated in earlier life.

He could have no control over that because they do it so young, you know, but I am going presently to call him, and I am going to ask the Jury to believe that he never has been vaccinated at any stage of his existence. Do not you think yourself that a medical man going about in the midst of an epidemic of small-pox, who persistently declines to be vaccinated, must have an honest belief in what he thinks with regard to vaccination ?—I should think that is evidence of such.

There is, is there not, even amongst the highest members of medical profession at the moment, some difference of opinion with regard to inoculation of serums or vaccines ?—Are you speaking of all kinds ?

Generally, first of all, there is a difference of opinion ?—Yes, there is.

There are men of the highest possible class who will not allow their patients to be inoculated at all ?—That is with vaccines.

Vaccines, of course, are prepared from the human body itself ?—They are prepared from growing germs and killing them and mixing them with the blood.

The serum is prepared by culture from an animal ?—Serum is from the blood of an animal.

There is a distinction, but there is a very strong feeling amongst very many members of the medical profession, and of the public, against any inoculation by vaccines ?—Yes, by vaccines.

Mr. JUSTICE LUSH. I am afraid I do not know enough to understand that. Is this antitoxin you use for diphtheria a vaccine ?—No, it is a serum.

How is it made ?—It is made by inoculating a horse with diphtheria toxin, the poison of diphtheria, and by so doing the horse develops protection, immunity in its blood, and then after the horse has been protected by several doses of the poison the horse's blood is taken and the serum separates, a straw-coloured clear liquid, and it is that serum which is the antitoxin, and it is that which is injected into the patient suffering from diphtheria. As regards the use of that antitoxin, I do not think there is any difference of opinion as to its advisability and efficacy if given.

Without going at length into it, what is a vaccine as distinguished from that ?—A vaccine is this: You get a certain microbe, say a typhoid bacillus ; that is grown and then millions of these microbes are taken in a saline, that is salt and water, and they are destroyed by heat, and that solution of the microbes is injected into the body.

Sir EDWARD MARSHALL HALL. That is to say, the dead microbes injected to give the living microbes something to do ?—The dead microbes react on the body and cause the body to produce protective substances.

Is the substance that is used for small-pox vaccination a vaccine or a serum ?—That is rather difficult to say. That is really a serous liquid obtained from the calf, and that is inoculated into the skin.

Is it a vaccine or serum ?—It is really a serum.

It is practically procured from cow-pox, is it not ?—Yes, that is right, but it acts in a different way from the diphtheria antitoxin, the small-pox or vaccine. When a person is vaccinated it produces a local reaction ; it produces a disease called vaccinia, and this illness caused by the inoculation protects against small-pox.

I am not going into the small-pox question, but we know that the House of Commons repealed the compulsory orders to the extent they did, and that was in consequence of great pressure of public opinion, but whether you and I agree or not we cannot express our private opinion ; at least you can, I cannot. If it is a fact that Dr. Hadwen has never in the whole course of his practice administered an antitoxin injection would you say it was negligent on his part not to administer it in this case ?—Yes, I would, or not to give some competent person the opportunity of administering it. I ought to qualify that answer of course. I am assuming that Dr. Hadwen had exercised sufficient skill to diagnose diphtheria.

Yes, I am assuming that. I need not put it quite as high as that. I can put it in this way : Assuming the conditions were such that Dr. Hadwen ought to have been suspicious that it was diphtheria—I am not dealing with a swab—do you say that having regard to the fact, if it is a fact, that he has never administered an antitoxin injection in his life, that he would be guilty of negligence if he did not either inject antitoxin in this case or call in some other doctor to do it ?—Yes, I think if he had not given the antitoxin himself that he should have sent the child to the Fever Hospital where it could have had the treatment.

Mr. JUSTICE LUSH. That does lead one to a difficulty we shall have to face ultimately. Supposing the opinion of a doctor is dead against antitoxin which the majority of doctors approve of, do you say that that necessarily connotes negligence on his part, although he may have been successful in curing patients who suffered from diphtheria without using antitoxin ?—I think in the case of diphtheria that it is one's duty to give antitoxin.

That I do not feel any difficulty in following, but it does not follow, although it is a duty in your opinion, that he is guilty of gross neglect if he honestly does not believe in it, and thinks he can cure without it, does it ?—I think if one reads the medical literature the evidence is so strong as regards the beneficial effect of antitoxin that I think it is one's bounden duty to give antitoxin.

You say the evidence is so overwhelmingly in favour of its utility of cure that a man who will not use it is responsible ?—I think so.

Of a neglectful character ?—Yes, if he sees the case sufficiently early.

Sir EDWARD MARSHALL HALL. Therefore it comes to this, does not it, that any doctor, duly qualified though he may be, who honestly believes that any form of inoculation by vaccine or serum is harmful to the patient must give up practising in any case in which there is the necessity of administering antitoxin ?—My answer only applies to diphtheria. There are many sera and many vaccines about which evidence is not decided enough, and in such cases everyone is entitled to his own opinion.

Do you agree, or disagree, that there is a percentage of the medical profession in this country who do not believe even in diphtheritic antitoxin ?

Mr. JUSTICE LUSH. Even for diphtheria, is that so ?—I have not heard of them. I have heard that Dr. Hadwen does not, and there may be others, but I am not aware of them.

Sir EDWARD MARSHALL HALL. Would you say that Dr. Hadwen is, in your opinion, or in your view, the only man in the medical profession who is opposed to the use of diphtheritic antitoxin ?—I cannot recall any other. I know of no other ; there may be others.

Mr. JUSTICE LUSH. What do you think about a doctor's duty if he does go counter to the views of the vast majority of physicians in this matter. Is it his duty to tell the patient : "Now there is a treatment which most doctors follow, but I do not use it ; will you let me treat your child or not ?"—I think that would be so.

Sir EDWARD MARSHALL HALL. That is the view you would take of his duty ?—Yes.

Would you go so far as to say, in the case of a man who does not believe in it, it was wilful neglect of his duty not to do it ?—I am afraid I must say so, because it may mean the death of the patient.

Holding the view you do ?—Holding the view I do.

You hold the view, do not you, that abstention from vaccines is almost criminal, talking about small-pox vaccination ?—I do not like to use the word "criminal."

As near as makes no difference ?—It is very wrong.

And anybody who disagrees with that is, in your opinion, of course, misguided ?—Yes.

That is your strong, honest opinion, and with most people it would have great weight. Let us take another serum for a moment. Some years ago it was quite common, in cases of pneumonia, to inoculate with anti-pneumococcic serum ?—Yes.

That has now, except in Paris and Naples, been abandoned, has it not ?—It has, to a great extent.

Perhaps it is only fair to ask you this : Abandoned because you gentlemen in the profession have not yet satisfied yourselves that you have the proper serum ? —That is right.

You never abandoned the principle, but you think the serum that had been used was not sufficiently efficacious for the purpose ?—Yes, and that applies to many others.

I do not want to go into details, but there are many other sera which have, in the past, been injected with the belief that they were efficient, and have they now had to be abandoned by the medical profession ? —Yes.

I am not quarrelling with your opinion at all. You hold the opinion, and as you told us practically the whole of the medical profession hold the opinion, that the injection of an antitoxin in diphtheria is almost a specific if it is done quick enough ?—It is one of the most valuable things in medicine.

That will not relieve my Lord and the Jury of a question which they will have to decide hereafter, whether, in an honest bona fide belief that that remedy is not efficacious, a man who abstains from using it is guilty of wilful neglect ?

Mr. JUSTICE LUSH. Of course, you are faced with this difficulty, that an honest bona fide belief in some remedy, without calling in a doctor at all, does not justify the person who follows it allowing his child, for instance, not to have the treatment.

Sir EDWARD MARSHALL HALL. There is always the question: Has there been wilful neglect? That is the case of Mawbie.

Mr. JUSTICE LUSH. That means an intentional neglect; not the desire to injure the patient.

Sir EDWARD MARSHALL HALL. No, a deliberate neglect.

Mr. JUSTICE LUSH. Therefore the Court has held that an honest belief that there is no efficacy in the treatment does not excuse wilful neglect.

Sir EDWARD MARSHALL HALL. It does not exonerate a person who wilfully refuses to call in a doctor from the responsibility for the death of that child.

Mr. JUSTICE LUSH. The Legislature has compelled a parent to call in a doctor.

Sir EDWARD MARSHALL HALL. But no legislature has yet compelled a doctor to inoculate with an antitoxin serum.

Mr. JUSTICE LUSH. That is true, but the difficulty remains which I have pointed out.

Sir EDWARD MARSHALL HALL. I have got far beyond the initial and important point in this case: Did he diagnose diphtheria?

Mr. JUSTICE LUSH. That still remains.

Sir EDWARD MARSHALL HALL. I am only dealing with Sir William Willcox upon that hypothesis. (To the Witness.) Now as to the diagnosis of diphtheria in its early stages. Do you agree that the most important thing is the presence of patches?—Of patches of membrane.

Do you find patches even in tonsillitis?—Yes.

Do you know French's Index of Differential Diagnoses?—Yes, I know those diagrams.

Upon the diagrams which are exhibited in the book, do you agree that the diagnosis between follicular tonsillitis and diphtheria may be very difficult?—It may be impossible, unless a swab is taken, and that is the important thing, to take a swab.

It may be so difficult as to be impossible unless a swab is taken of it?—That is right.

There is a real danger in inoculation of antitoxin; there is a thing called anaphylaxis?—There may be a danger if the patient has been inoculated before with serum.

Or there may be a danger if the child is inoculated after?—You mean with the same?

The same serum?—Do you mean at the same time as its illness?

No, later on, a different illness altogether?—Yes, a person may be susceptible to serum if he has had one or more doses some time before.

Super-susceptible?—Yes, but I have never seen any fatal case from the use of serum.

The difficulty is this: Dr. Washbourn said, and I think you said, that on suspicion of diphtheria it is advisable to inoculate at once?—Yes.

My point is this: It is said it does no harm, but if, in point of fact, the patient had not diphtheria when that inoculation took place, if on a subsequent occasion it had diphtheria, and it was necessary to inoculate, there is an increased danger of what you call anaphylaxis?—It can be avoided if a person has had serum before; one gives the second lot of serum with special precautions.

If you do not know the patient has had a previous injection, then, of course, you cannot take the precaution?—If you do not know there might be some risk. I have never seen any danger from the use of diphtheria antitoxin thousands and thousands of times.

Let me try and summarise what the position is. On Dr. Washbourn's evidence there are two things which are against your theory with which you do not disagree, the condition of the heart, and the exact nature of the pneumonia. You, unfortunately, disagree?—I do not think we disagree about the condition of the heart.

In the case of the alleged diphtheritic membrane that Dr. Washbourn found, do you agree, or do you not agree, that it is impossible to say affirmatively whether that membrane was diphtheritic without a microscopical examination?—No, I do not. I think one can say that it is a diphtheritic membrane from its naked-eye appearance. I think Dr. Washbourn said that.

He did say that. What Dr. Washbourn said in fact was this: "I did not want a microscopic examination, although a microscopic examination would have been conclusive, because by the appearance I was able from my trained eye to say it was diphtheritic." You agree, do not you?—Yes.

Therefore, in that case, which is in favour of the theory of the prosecution, you agree to dispense with a microscopic examination?—Yes.

Let us take two points which are in favour of the theory of the defence. The first is the normality of the heart?—Yes.

The answer to that by you is, "No, I cannot accept that," because unless there is a microscopic examination you cannot say whether the heart was normal or not?—Yes.

So there being no microscopic examination of a symptom which would be favourable to Dr. Hadwen, you insist upon a microscopic examination as a test of diagnosis?—In a case of diphtheria like this, which became severe, I am quite certain there was some degeneration of the heart which would be found under the microscope, but you would not be able, I say, to tell that with the naked eye.

I suggest to you that you can tell?—You can tell with the naked eye if there is fatty degeneration in cases where the patient has been ill some time, say two or three weeks or more, because you can see the fatty appearance of the heart muscle, but in a great many cases it is not possible to tell with the naked eye and you have to make a microscopical examination.

I suggest to you a gentleman of Dr. Washbourn's position and integrity would never have reported that the heart was healthy—which were the exact words in his report—if he had had the slightest doubt upon it that could have been set at rest by a microscopical examination?—I do not agree with that. I think that expression "The heart healthy or normal" meant to the naked eye, and I have no doubt it did appear normal.

Surely it is a well-known thing, is it not, that one of the grave dangers of diphtheria is this affection of the heart?—Yes.

So grave that children are kept in an absolutely recumbent position and people are not allowed to come suddenly into the room. There must be no sudden noise, nothing of that kind, for fear the heart may fail upon sudden shock. Is not that so?—Yes.

And in conditions of diphtheria that is the grave risk, is it not?—Yes.

And if the patient who has got that diphtheria and is in that condition died, in all probability you would find a condition of heart which was consistent with that condition?—You would with the microscope, but you probably would not with the naked eye.

Do you mean to say that with a man of Dr. Washbourn's experience with the question whether this was diphtheria or not, if he had seen any doubtful signs in the heart he would not have instantly examined it with the microscope, because he knew that the question of the condition of the heart was important as affecting the diagnosis of diphtheria?—One does not have time to make these exhaustive examinations in many cases.

One does not have time to make microscopical examination at a post mortem even when the charge involves a charge of manslaughter or criminal negligence against a brother practitioner?—I did not mean that the examination should be made with lack of care, but in this case Dr. Washbourn had made a complete and exhaustive examination and had found the cause of death, and he did not think it necessary.

Mr. VACHELL. I am sure my friend will forgive me, but what Dr. Washbourn said before the Coroner was this, "The heart was apparently healthy; its cavities were not unduly distended."

Sir EDWARD MARSHALL HALL. I read it out to Dr. Washbourn this morning and asked him whether he accepted it. I read out the actual report he made and sent to the Coroner, and I read these words "Heart healthy, cavities not unduly dilated," and he accepted that as what he found and it was upon that I was asking. I will not pursue that part any more. Now as to the question of the lung. In the case of lobar pneumonia, what does the lung do, float or sink?—When the stage of red hepatisation is reached the lung sinks.

What do you call this but sinking? He said it sank and he qualified it by saying in re-examination it was just awash, that is to say, there was a little bit of water coming over the upper part?—He said it just floated.

His words were "Just awash"?—He said "Floated" before the Magistrates and "Just floated" to-day.

My learned friend put the word awash to him and he accepted it?—Yes, it only just floated.

I suggest to you the difference between lobular and lobar is apparent to the naked eye?—It is in some cases, not all.

Do not the lobules always have some healthy tissue round them?—They do in a case in which it is not very extensive. In this case it was exceedingly extensive, the lobular pneumonia.

If, in point of fact, the heart was right and this was lobar pneumonia, they are both unexpected sequelæ of death from diphtheria, are not they? Yes.

As to the question of this needle business before the child died, I do not think my learned friend followed what my point was?—With regard to the last answer, assuming the heart was right, but I disagree; I say the heart must have had some degeneration of its muscle.

I am assuming that the doctor's report is right, that the heart was normal and that the pneumonia was lobar. They are both against your theory of diphtheria sequelæ. You said they were a moment ago. If you want to qualify it, you may.—I have already said that lobar pneumonia is rare in diphtheria, and about the heart I have already said that the heart may appear apparently normal to the naked eye but yet have degeneration.

Those were not the questions I asked you. I said if Dr. Washbourn is right in his two statements that he heart was normal and that the pneumonia was lobar, they are unexpected sequelæ of diphtheria? —Yes.

Can you conceive of a case where it was more important that the person, against whom the possibility of a charge being preferred was at the moment obvious, should have been invited to be present at that post-mortem examination in common fairness? —The invitation to be present at a post-mortem examination rests entirely with the Coroner and I would prefer not to criticise any action a gentleman of that position takes.

But if there had been anybody, representing Dr. Hadwen, who was a medical man or Dr. Hadwen himself, he could have examined the heart microscopically. He could have examined the membrane microscopically, he could have examined the lung microscopically?—Yes.

And he would have had an opportunity of giving evidence upon that thereafter?—Yes.

Never mind about the Coroner, if you had been responsible, especially in the case of a medical man charged with wilful neglect of this kind, would you have any hesitation in inviting him?

Mr. JUSTICE LUSH. Is Sir William Willcox bound to express an opinion, a criticising opinion? You can comment on it to the Jury.

Sir EDWARD MARSHALL HALL. I withdraw it if your Lordship thinks that. With regard to this needle, you say it was justifiable in the case of a doctor who has diagnosed a child moribund from diphtheria. He said it was too late and the case was hopeless, that was his own evidence. Do you say it was justifiable to insert this needle for the purpose of ascertaining whether there was fluid or not?—Yes.

Surely if there is fluid in a lung even at that stage you can detect it at once by the alteration of the position of the heart?—You can in an adult, but in children it is exceedingly difficult to say for certain whether there is fluid in a chest or whether it is simply consolidation of a lung.

But if there is fluid the position is altered?—Yes.

Probably would be?—Yes.

Probably drawn downwards and towards the healthy lung?—It is pushed over by the fluid to the sound side.

So there would be no difficulty except in the case of a child. Do not you think in any event that ought to have been done before you decided to aspirate? —Sometimes it is very difficult in a child very ill to make out the exact position of the heart.

You agree that this particular bacillus is often found in healthy throats, and also in inanimate objects?—It is found in healthy throats, but in the various figures it comes to roughly 3 per cent.

And it is also found, is it not, in cases of people who are carriers, but not susceptible to the disease? —Yes, that is so.

You yourself have no knowledge of either Dr. Hadwen or his views?—No.

Re-examined by Mr. VACHELL.

As to the difficulties of diagnosing diphtheria, it is suggested, and I think you accept it, that by mere eyesight observation there may be a great difficulty in distinguishing between a case of tonsillitis and diphtheria?—Yes.

In those cases, of course, the swab and the bacteriological examination would be most useful?—The swab should be taken.

Supposing in addition to a throat in which there is membrane there are these symptoms we have heard of, the very foul breath, the discharge from the nostril, drowsiness, the headache, and the thick speech, would any of those symptoms assist one in coming to a conclusion as to what the nature of the disease was?—Yes, it would be practically certain without taking a swab that the case is one of diphtheria.

Mr. JUSTICE LUSH. In this particular case? —Yes.

Mr. VACHELL. Such symptoms as you have heard here. Does it come to this, that there may be cases of tonsillitis which are difficult to distinguish without the aid of bacteriological examination?—There may be cases, but not in this case.

Not where you have these other symptoms?—No.

About the heart, does the failure of the heart action frequently play a part in the actual death of the patient?—Yes.

Is it due to that in a large percentage of cases?—Yes, it was so in this case.

Mr. JUSTICE LUSH. Was what?—The heart failed; that was the immediate cause of death.

Mr. VACHELL. I drew attention to what Dr. Washbourn said before the Coroner on the subject of the heart. What he said before the Coroner seems to have been this: "The heart was apparently healthy, its cavities not unduly distended." I suppose the distension or not of the cavities would be something he could see without a microscopical examination?—Yes.

And would that, supposing you saw no distension of the cavities justify what he says there, that apparently the heart was healthy?—Yes, apparently the heart appeared healthy, but there is always some muscular degeneration in these diphtheria cases.

Now about the distinction between lobar and lobular. If this pneumonia in this right lung had been indeed lobar would the lung have just floated, I think that was one of the terms that Dr. Washbourn used?—It would have sunk.

Altogether?—Yes.

Is that something that one can rely on altogether. Would it not have been unable to float to the limit of extent this did ?—It is a rough test, it is not an accurate test, but it is a test that is always done.

And does the fact that it just floated assist you in coming to a view as to the nature of the pneumonia ?—Yes, it confirms my view that it was a massive lobular pneumonia.

Now about the needle used for exploring ; would any harm be done to the child by that ?—Not if it is done with due care.

Would that in any way contribute to the child's death ?—No.

Mr. Justice Lush. I do not think that has very much really to do with the case, that puncture.

Mr. Vachell. Then I really fail quite to know what my friend meant.

Sir Edward Marshall Hall. I will tell you why I put it, to show that Dr. Ellis was not so competent as he would have us believe, and that he ought to have been able to diagnose it by auscultation and not to puncture the child within half an hour of its death to see if there was fluid.

Mr. Vachell. Is there anything you would like to add before your evidence finishes ?

Sir Edward Marshall Hall. In the case of a lung that has lobular pneumonia, the lung would not be solid, of course ?—No, there would be areas containing air ; those areas would be large or small according to the extent of the lobular pneumonia.

Although there was no microscopical examination you would, of course, be able to say whether the lung was solid or not ?—Yes.

I have only just found this. Do you know that Dr. Washbourn said before the Coroner : " The right lung was red and solid throughout " ?—Yes, I know he said that. I accept that entirely. That might have been so with a lobular pneumonia if it was a very extensive one, and it was so in this case.

You say that the danger from the heart is so serious in the case of diphtheria ; what do you say about the condition of a child who on the ninth day of a diphtheritic attack of this gravity is able to walk downstairs, go and get a drink of water, and walk up again ?—I say that child was running a very great risk of dropping dead.

That is to say, if the heart was affected ?—I think the heart must have been affected because of that nine days' illness ; it must have been affected more or less.

Is not this inference also to be drawn, that having regard to the fact that she did so without assistance, the probability is as to this sudden death from the heart that she had not been so ill as you have otherwise indicated ?—No, I do not think so.

Have you ever heard of a child with diphtheria for nine days getting up and walking downstairs in her bare feet ?—Yes, many cases.

Mr. Justice Lush. What happened ?—There are many cases of diphtheria that are not diagnosed, and the children are walking about all the time.

Sir Edward Marshall Hall. But they are not serious cases of diphtheria ?—They may be.

Are they running a great risk all the time ?—Yes.

That is because the heart is invariably affected ?—The heart is invariably affected. You cannot say whether it may suddenly stop or not. It is invariably more or less in all the severe cases.

Mr. Vachell. Does it necessarily mean that a diphtheria patient must drop down dead if he gets out of bed ?—Certainly not.

It is merely that there is a risk ?—Yes.

Mr. Justice Lush. You told us some time ago that the proportion of deaths when antitoxin was administered had fallen from 30 to 40 down to 10 per cent. ?—Yes.

Does not it make a difference to the chances of recovery whether you administer this serum at once or whether you wait two or three days ?—A very great difference. If it is given on the first day the mortality is very slight, 3 per cent. in some years, and in some years the mortality has been nil.

If you administer the antitoxin on the first day the proportion of those who do not recover is 3 per cent., or even nil ?—Yes, that is right.

Take the whole of the cases where antitoxin is administered, and there are 10 per cent., how do you account for the difference between the nil and the 10 per cent. ?—Because a large number of cases that come into the hospitals arrive in the later days. Some of them arrive after the sixth day, and one, perhaps, does not give them antitoxin at all.

Sir Edward Marshall Hall. That would not come within your Lordship's question if they had not had antitoxin. He said some do not get it at all.

Mr. Justice Lush. I am taking the cases that come within the 10 per cent. You have given 3 per cent., or nil, if the antitoxin is administered on the first day. If the total number is 10 per cent., the other 7 per cent., or 10 per cent., must have had antitoxin administered after the first day, must not they ?—Yes.

Supposing you administer the serum, say the third or fourth day after the attack begins, what sort of percentage would you expect ?—I can give you the figures, if you like.

Mr. Justice Lush. I would like to know, because I have a reason for asking. This patient had diphtheria, apparently, two days before the doctor was called in.

Sir Edward Marshall Hall. Certainly two.

Mr. Justice Lush. Certainly two, possibly three. Therefore Dr. Hadwen cannot be blamed for not administering antitoxin before the second or third day, as the case may have been ?—I can give you the figures. The first day are 3 per cent., the second day about 5, the third about 6 or 7. I will give you the exact figures.

And if it is not administered at all it will be about 30 to 40 per cent. ?—Yes.

It is not a perfect and absolute cure if it is administered at once ?—No, but some cases of diphtheria are so bad, so grave, that they are practically hopeless from the first.

Are there other cases ? Take lockjaw ; do not you administer a serum for that ?—Yes.

What is the sort of proportion of recoveries there ?—In the case of lockjaw the serum has not been the great success it has been with diphtheria, because in lockjaw the poison fastens itself on to the spinal cord, and the poison has done its damage on the spinal cord before you can get your serum in. It is very valuable as a preventive, that is if a person has a wound, and that wound contains the lockjaw germs, if you give that person a dose of serum you can prevent him getting lockjaw, but if he has once got lockjaw the serum is of value, but not of anything like the great value that it is in diphtheria.

Is there any antitoxin that is more powerful as a curative than the diphtheria antitoxin ?—No, I should say it is the most certain and the most efficacious of all the sera.

STEPHEN WILLIAM WICKHAM, *sworn.*

Examined by Mr. Micklethwait.

Are you a Police Constable in this City ?—Yes.

Were you present on the 13th of September when Inspector James charged Dr. Hadwen ?—I was.

Did Dr. Hadwen say anything ?—Yes, he said : " I have nothing to say."

Mr. Vachell. My Lord, that is the case for the Crown.

Sir Edward Marshall Hall. I will at once call Dr. Hadwen.

EVIDENCE FOR THE DEFENCE.

DR. WALTER ROBERT HADWEN, *sworn.*

Examined by Sir Edward Marshall Hall.

Is your name Walter Robert Hadwen ?—Yes.

What are your qualifications ?—Doctor of Medicine, St. Andrews University ; Licentiate of the Royal College of Physicians, London ; Member of the Royal College of Surgeons, England ; Licentiate in Surgery and Medicine of the Society of Apothecaries.

How long have you been in practice ?—Something over 30 years.

I believe you have been a lifelong teetotaller ?—Yes.

And a vegetarian ?—Forty years.

You eat no meat, and you have never tasted alcohol ?—No.

Among other things, have you had experience of diphtheria ?—Yes, I have had a fair amount.

What sort of experience ; have you ever had a diphtheria epidemic to deal with ?—Years ago ; about 25 years ago I was associated with an epidemic of diphtheria at Stapleton, in Bristol, and most of the cases came under my care, and there I had, of course, considerable experience of what diphtheria really is.

Have you ever, in any case of diphtheria that you attended, administered an injection of diphtheria antitoxin ?—Never, and all my cases have been successful.

Have you ever been vaccinated ?—I have not.

The Burnham family, I think, are club patients ?—They are.

And I think you had attended them for about six months, or so, prior to August of this year ?—I understand they have been in this association about that time ; I have not attended them, as far as I know, before this time.

Was the first person you were called to see Leonard ?—Yes.

And did you go to see him on the 21st July ?—Yes, that was the first day.

What was he suffering from ?—Suffering from ulcerated tonsillitis, commonly called septic tonsillitis.

Was there any discharge from the nose ?—None whatever.

Did you notice any foul smell from his breath ?—None.

Was anything said by the mother to you as to there being a foul smell ?—Not a word.

Did you attend him on four successive days, and twice afterwards ?—On the 21st, 22nd, 23rd, then the 25th, and finally the 28th.

That is five days ?—Yes.

Mr. JUSTICE LUSH. That is July ?—Yes.

Sir EDWARD MARSHALL HALL. What did you give him ?—I gave him a saline mixture, ordered gargles of vinegar and hot water, and when he had recovered from his tonsillitis I gave him a tonic.

And we know that he got well ?—Perfectly well.

When do you consider, first of all, he was well of the tonsillitis ?—Roughly in about four or five days.

Did you see him again after you gave him the tonic ?—Yes, I saw him several times whilst I was attending the deceased child.

And during that time was he running about the place, and did he seem all right ?—Yes, perfectly.

Is the gargle of vinegar and water a thing you have often employed ?—I have employed it in thousands of cases, and always successfully.

Is vinegar what is called acetic acid ?—Yes, it is diluted. It is recognised in the British Pharmacopœia.

British Pharmacopœia, or no British Pharmacopœia, has it proved, in your hands, an efficacious gargle ?—Unquestionably.

In this case did it prove efficacious ?—Undoubtedly.

Did you suspect at all the possibility of diphtheria in this case ?—Yes.

Mr. JUSTICE LUSH. In which case ?—In Leonard's case.

Mr. JUSTICE LUSH. Would you mind asking him if he did in Leonard's case ?

Sir EDWARD MARSHALL HALL. It is still Leonard's case. You did not rule out the suspicion of diphtheria ?—No.

And did you satisfy yourself whether it was diphtheria or not ?—Absolutely.

Sir William has told us that acute tonsillitis and diphtheria are often indistinguishable in an early age, except by a swab ?—I do not accept that at all. The great and general distinction between tonsillitis and diphtheria is this, that tonsillitis is confined to the tonsils, whereas diphtheria always appears upon the uvula, or the soft palate. In addition to that, tonsillitis invariably affects both tonsils, but in the majority of cases in diphtheria only one tonsil is affected. In addition to that, one of the very earliest signs of diphtheria is an enlargement of the cervical glands, and in every case of genuine diphtheria which I have attended the face has been practically square, square jaws. In tonsillitis there may be a slight enlargement of the glands, but very slight indeed. The really pathognomonic sign of diphtheria is this, very considerable enlargement of the cervical glands, very tender, and beginning at an exceedingly early stage.

Was there anything you might have done, short, of course, of taking a swab, I am not dealing with that, in forming the diagnosis of Leonard, which you did not do ?—No, not one single thing.

What was your diagnosis in Leonard's case ?—Ulcerated tonsillitis.

Was there even sufficient doubt in your mind to indicate the advisability of taking a swab ?—None whatever.

Having regard to the way in which Leonard got well and the course that his illness took under your treatment, what do you say now, was he suffering from diphtheria ?—Certainly not, not a vestige of it.

On the 28th I understand the evidence is that Mrs. Burnham brought little Gladys to your surgery ?—Yes.

Were you told how long she had been ill ?—I do not remember.

What was the matter with her ?—Simply a slight tonsillitis, very slight indeed. I may say that Leonard had the worst throat of the three children.

What did you do for Gladys ?—Simply ordered the same as for Leonard.

Were you asked by the mother to look at Gladys again at all ?—No, I do not think I was. The child began to run about the streets and was running about at the time I was attending the other child.

Mr. JUSTICE LUSH. How soon did Gladys begin to run about ?—Well, she never went to bed.

Sir EDWARD MARSHALL HALL. Had you or have you any suspicion that Gladys ever had diphtheria ?—I am sure she never had.

That was the 28th. What day was it that you were asked to go and see Nellie ?—August 1st, a Friday.

Did you go ?—I went ; I reached there about a quarter past one in the morning.

Were you told how long the child had been ill ?—Yes, the mother told me that the child had been ill for two days.

Before you saw the child, had the mother given you any description of her symptoms ?—No, nothing but that the child had a sore-throat.

When you got there, was the child in bed ?—Yes.

Tell my Lord and the jury what you did. Was Leonard in bed ?—No.

Leonard had not been in bed ?—No.

Nellie was in bed ?—Nellie was in bed.

What was the first thing you did ?—The first thing I did was to examine the throat.

Tell my Lord and the jury how you examined the child's throat ; what did you do ?—I told the child to open its mouth, draw in its breath and say "Ah," and when you do that with a child you can generally see the whole of the throat with very little difficulty, and I simply put my finger upon the tongue just to press it down—she raised it slightly—and thus of course had a good sight of the tonsils.

What did you find ?—So much has been made about my putting my finger in the child's throat that perhaps I may, if you will allow me, say that I consider the finger is the best tongue depressor you can possibly have. When I examined the throat, I found there were three follicles, three ulcerated spots upon the right tonsil and there were two upon the left. The throat was very red, and I just made the remark, "It looks very much like a scarlet fever throat," and I carefully examined the body in order to see if there was any rash. I found no rash and, considering the time the child had been ill, if it had been scarlet fever there would have been a rash. I then noticed that the child had a watery discharge from the nose, in fact the child had a bad cold. I then examined the chest stethoscopically and I found a little harsh breathing which pointed to a slight bronchial catarrh and I fancied there might have been a suspicion of broncho-pneumonia.

You say you had a suspicion of it ?—I had a suspicion ; I thought it from percussing one or two spots. I then ordered an expectorant mixture for the child, vinegar and hot water for the child to gargle the throat, and just a few general directions.

It is said you never took her temperature or felt her pulse ; what about that ?—The statement is quite untrue.

What did you do ?—I felt the pulse the very first thing as I always do ; it is part of the general routine of a medical man's practice.

From the pulse can the doctor diagnose very often other conditions ?—Yes.

From the pulse did you diagnose any feverish condition or what ?—From the pulse I found that the pulse was rather quicker than normal, and I then took the temperature and found it was 100°.

Would the taking of the pulse necessarily be visible to the mother when you took it ?—It might have been. I will not be quite sure that it would be, because I find with children it does not do to make much fuss with them, and I would just simply put my hand on its hand and, without letting it know what I was doing, I just grip the pulse and look at the throat at the same time and humour the child.

Is it any longer necessary to go through the old-fashioned paraphernalia of taking out a watch ?—No, not for that.

Experienced medical men can tell approximately without a watch ?—Yes.

The temperature was 100°, the pulse was a little faster than normal and you prescribed this expectorant medicine. Where was that to come from ?—From the surgery.

You had also prescribed the gargle ?—Yes.

How long were you there, should you think, on the first occasion ?—I should think roughly about eight or ten minutes.

Did you in any way unduly hurry your visit to the detriment of the child ?—Certainly not.

Mr. Justice Lush. The mother says you were only there three minutes on each occasion ?—That is absolutely untrue.

Sir Edward Marshall Hall. You were there about ten minutes ?—I should think about ten minutes.

Anyhow, did you make a careful examination ?—I did.

And your diagnosis was what you have told us, that the child had tonsillitis ?—Absolutely.

Had you any suspicion of diphtheria ?—None whatever, though I had it in mind as one naturally would.

I suppose in every case of sore-throat you must have diphtheria in your mind ?—Certainly.

When you first saw this child, was she well-nourished or poorly nourished ?—She was a very poorly nourished, ill-conditioned, weakly child with sore eyes, what we generally call a strumous condition.

Mr. Justice Lush. What age was she compared with the other two ?—The boy was 14.

How old was Gladys ?—Six and this one was 10.

Mr. Justice Lush. She came between the two.

Sir Edward Marshall Hall. Nellie came between the two.

Mr. Justice Lush. And were the other two healthy robust children or not ?—No, they are all weakly children.

Sir Edward Marshall Hall. Under the rule of the club, as the mother has told us, can anybody send for you at any time if it is urgent ?—Any time whatever.

Mr. Justice Lush. If you do not mind my suggesting it, before you pass from the first visit, would you ask about the yellow discharge ?

Sir Edward Marshall Hall. I will ask that specifically. On the first visit did you see any yellow, blood-streaked discharge from anywhere ?—None whatever.

Mr. Justice Lush. You are quite sure of that ?—Absolutely positive.

Sir Edward Marshall Hall. Did you see any membrane or membranous diphtheritic matter in the throat ?—Not a shred of it.

Did you notice any offensive breath as far as Nellie was concerned ?—None whatever.

Did you notice whether she was particularly drowsy ?—She certainly was not drowsy.

Not at that first visit ?—No.

Did the mother ever point out to you a yellow-red discharge ?—No.

Never said a word to you ?—No.

Or did she ever say a word to you about her bad breath ?—Not a word from first to last.

You were not sent for between the 1st and the 4th, but on the 4th you went again on your own accord ?—Undoubtedly.

Mr. Justice Lush. The mother did not ask you to go again ?—No.

Sir Edward Marshall Hall. What about these ulcerated spots ?—On the 4th when I called the three spots had coalesced, and so had the two ; they were quite small, and apparently were already diminishing. I was very pleased with the condition of the child.

Mr. Justice Lush. Are you referring to the spots ?—On the tonsils.

Are they the spots on the throat you can see ?—Yes, on the tonsils. I was also pleased to notice that there had been no spread whatever to the uvula or the soft palate ; simply these spots upon the tonsils themselves. The throat was still very red. Then I did not use my stethoscope on this occasion, I used direct auscultation, that is, I put my ear to the child's back, and examined its lungs, and I found that the bronchial catarrh had completely cleared up. I saw no watery discharge from the nose. The child was better in every way, and I told the mother on that occasion that I was most pleased with the progress it had made.

Sir Edward Marshall Hall. You said that the throat was still very red ?—Yes.

If this had been a diphtheritic throat would you have expected to find it red, or some other colour ?—No, it would have been a very pale colour. That is one of the most distinctive signs between tonsillitis and diphtheria, that is of the very pale mucous membrane in the case of diphtheria, but a bright red in the case of tonsillitis.

Did you find, on that occasion, very offensive breath ?—No, none whatever.

And did you see any sign or vestige of membrane ?—None whatever ; it had not spread to the uvula, or the soft palate at all.

Did you change the medicine, or let her continue ?—No, I told her to continue the aperient medicine, and to continue the gargle of vinegar and hot water, when she told me that the child could not gargle very well ; it could not get the gargle back far enough, were her words.

Was that the Monday, or the Wednesday ?—This was on the Monday.

Mr. Justice Lush. What date was this ?—The 4th.

Sir Edward Marshall Hall. What did you tell her ?—I then told her to apply some glycerine with a feather over the tonsils.

How long did you stay on the Monday ?—Roughly, about the same time.

About ten minutes ?—I should think so.

Did you stay a sufficient time to enable you to do justice to the patient ?—Certainly.

Then did you come again of your own volition on the 6th, the Wednesday ?—Yes.

What was the condition of the child then ?—On the Wednesday I may say that when I entered the house I met the mother at the bottom of the stairs, and I said : " Well, how is the little one this morning ? ", and she replied : " Oh, it is very much better," and when I went upstairs into the bedroom

I found that to be correct. The child was sitting up in bed, and smiling, and seemed better altogether. There were no further signs of the cold or cough. The right tonsil was completely clear. The left tonsil was nearly clear, only a small pin-point left. There was no membrane upon the uvula or the soft palate, and the child was so much better altogether that I said to the mother: "You need not give any more of the mixture; I will let you have a tonic. The child is so weakly that it needs strengthening up."

Did you, in fact, prepare a tonic for her?—I did. I gave her a mixture of syrup of phosphates, and she sent down for it, and the child had it.

Did you take the child's temperature on the 4th?—No, I did not take the child's temperature either on the 4th or the 6th, because I found the pulse quite normal, and it was unnecessary.

You did feel the pulse?—I took the pulse on each occasion I went there.

Was the child weak on the 6th when you saw her?—Yes, very weak. She was a poor weakly child.

And she was in bed?—She was in bed.

You did not come again until the 9th, did you?—Until the 9th.

Then you were sent for?—I was sent for, but I was coming. As a matter of fact I had it booked for Friday, but I was so exceedingly busy I could not reach there, and it was not an urgent case, I considered, so I did not go.

Mr. Justice Lush. But you were going?—I was going on Friday. I had it marked out in my book for the 8th, but I was so exceedingly busy with some urgent cases that I could not very well go, and I therefore went on the Saturday morning. Just as I was going the little boy I had cured of tonsillitis came down and said: "Mother said will you come up as soon as you can and see Nellie, because she has been taken very much worse." I said to the boy: "I am just coming," and I went. I was there about five minutes past 10.

Sir Edward Marshall Hall. What did you find?—I was thunderstruck at the change in the child. The child was breathing rapidly, and was lying in the most listless manner, quite contrary from what I had left it on the Wednesday, and I turned to the mother to find out what was the meaning of it. The mother said it had been taken with vomiting early on the previous morning, that was on the Friday. She said it had been vomiting the whole of the day. She said it could not keep down either its milk or its medicine, and I saw at once that the child was in a serious condition. I first examined the throat, and I made the remark that has been quoted: "The throat has cleared up nicely." There was not a vestige of ulceration upon the tonsil. There was no membrane either upon the uvula or the soft palate. The throat was perfectly clear, as clear as the palm of my hand. I then examined the chest, and I found that in the right lung the breath sounds were deficient, and I concluded that the child had pneumonia. The left lung was quite clear. The air was coming through well, and I turned to the mother and said: "Well, I think she will pull through all right," because having had a very long experience amongst children I know this, that you can never give a child up until the last gasp, and it had one good lung, and I saw no reason why it should not, perhaps, providentially, get right again. At the same time, it was in a very serious condition. I took the temperature, and I found it was 101°. The pulse was 120. I then said to the mother, "Well, there is only one thing, and that is you must give milk as often as ever you possibly can; give it cold, because that is more digestible, but do keep milk going as much as ever you possibly can. It is the only thing to save the child." This is to keep the strength up in order to battle against the disease. The mother said: "What about the medicine?" Well, in a case of this sort, of course, medicine was very little use. I said, "Well, dilute it with water, and just give that if you can," not that I felt the medicine would be of any value, but that it might help her to take the milk, but keeping up the strength was the point that I felt was to be done.

On that day, the 9th, did you see any discharge from the nose, or from anywhere, of a yellow colour stained with blood?—None whatever.

Did you at any time during the course of your visits to this child ever see any yellow discharge stained with blood?—None whatever, from first to last.

Were you ever told by anybody, Mrs. Burnham, or the sister, or anybody else, that there was a discharge of that character?—It was never mentioned.

Nor was your attention ever called to it?—My attention was never called to it.

Mr. Justice Lush. Were you quite close to the child's breath when you were examining the chest, you must have been?—Yes, one would be.

Did you notice any offensive smell?—No, none whatever, not but what, of course, with septic tonsillitis very often you do get a foul breath, but I did not notice anything here, and my nasal organs are fairly acute.

Sir Edward Marshall Hall. You are 70 years of age, I think?—I am 70 years of age.

They are quite acute, in spite of your 70 years?—Yes.

Did you ever tell the mother on that occasion, or anybody else, that there was nothing the matter with the child whatever?—Certainly not, it would have been a most absurd statement.

Mr. Justice Lush. That impressed me very much, of course, and no doubt the Jury. The mother said it was on the 9th the doctor said that, and, of course, the child, on the evening of the 9th, was dying?—With the conditions that the mother told me the child was suffering from it would naturally have been an impossibility, with the child in front of me, to have made any such observation; it is too ridiculous for words.

Sir Edward Marshall Hall. How long did you stay on that occasion?—I stayed a fairly good time. Of course, I cannot say exactly, but I made a very thorough examination. I was very much alarmed, and taken aback, and I tried to find out from the mother what was the meaning of it, but I could get nothing from her about it.

It is admitted, so that there is no reason for my not putting it to you, that the mother never told you that the child had been downstairs on the night of the 7th in her bare feet to get a drink of water?—No, she did not.

If she had told you would you have attached importance to it?—Most decidedly I should.

Was what you saw then consistent with the result of a chill caught by the child at or about that date?—Certainly; something I saw had seriously happened between the Wednesday and the Saturday, and it was a mystery to me as to what it was that had happened.

Do not give me any details, but tell me if you can, when was it that you first knew that this child had been downstairs on the 7th under the conditions we now know of?—It was several days after the inquest had been held.

Mr. Justice Lush. I suppose it was proved at the inquest?

Sir Edward Marshall Hall. Yes, it was afterwards?—At the adjourned inquest.

Mr. Justice Lush. The mother gave evidence on the first day, did not she?

Sir Edward Marshall Hall. Yes, but she was recalled.

Mr. Justice Lush. Did not she mention it on the first day?

Sir Edward Marshall Hall. Not a word till she was cross-examined by my learned friend Mr. Clements on the 12th September, a month afterwards. Further than that, if your Lordship looks, she was asked if she knew of anything that had happened, and she said she knew of nothing. Then my friend put it specifically to her, and she admitted it. (To the Witness.) In the normal course of events, having regard to that child's condition, when you saw her on the morning of the 9th, when would you have gone again to see the child?

—I should have gone again the same night, and I intended to do so.

At about what time was it that the telephone message came through ?—Just about nine o'clock. I had just come in from seeing a case, and just as I opened the front door the telephone bell rang, and I went to it.

We have heard what Mr. Fudge says. Is that fairly accurate ? Will you tell us what did take place ?—Some man spoke, and the first words were : " I am speaking with regard to Nellie Burnham." I said : " Who is that ? " He said : " Nellie Burnham, 49, Vauxhall-road." I said : " Yes." He said : " I am very dissatisfied with your treatment of her." I just remarked " Yes," and he said : " I want to have another doctor." I said : " But the child has been going on exceedingly well until this morning." He said : " I do not agree with you ; I am thoroughly dissatisfied with your treatment, and I am going to have another doctor." Then he added : " Have you any objection ? " I said : " Well, we live in a free country, of course you must please yourself," and he then said : " Well, I am going to call one," and I said : " Very well," and with that the telephone message closed.

Were you ever told on the Sunday by anybody that the child was dead ?—No.

Did you know on the Monday ?—No.

Did you hear it on the Tuesday ?—No.

When did you hear it ?—I heard it for the first time on Wednesday, an hour and a half before the inquest was held.

Who communicated with you ?—Some young man from the Coroner's office.

Until you heard that, did you know that the child was dead ?—I did not ; no idea.

Had you had any notice prior to this that there was going to be an inquest ?—None whatever.

Had you had any notice that there was going to be a post-mortem examination ?—None whatever.

If you had had notice that there was going to be a post-mortem examination and that your conduct was called in question, would you have asked to go to the post-mortem examination ?—Certainly I should.

Or been represented ?—Certainly I should.

What day was it the inquest opened ?—On the Wednesday.

And you heard of it an hour and a half before ?—I heard of it an hour and a half before.

Did you ever have any sort of communication of any kind whatsoever from Dr. Ellis ?—None whatever.

Did you yourself go to the inquest ; did you attend the inquest ?—Yes, I did.

And you heard the evidence ?—I did.

From the evidence given by Dr. Washbourn—— ?—No, you are speaking of the first inquest.

The only evidence then was that of Mrs. Burnham, the mother, and Dr. Ellis. Then it was adjourned, we know, with no evidence, and then finally adjourned until the 12th September when my friend Mr. Clements represented you ?—Yes.

You have heard all the evidence in this case, both before the Magistrates, before the Coroner, and in this Court ?—Yes.

First of all, what do you say, is it possible in your opinion to distinguish between diphtheritic membrane and other membrane when it was found by Dr. Washbourn without microscopical examination ?—You cannot be sure it is diphtheritic membrane unless you do microscopically examine it.

Whatever may be the exact effect of that, did you ever see any membrane such as it is suggested by Dr. Washbourn you must have seen ; did you ever see any membrane in the dead child while it was alive ?—No, none whatever.

Of course, you never saw the post-mortem examination ; you did not see the lungs or anything ?—No, I saw nothing at all.

Then you had a communication from Dr. Washbourn, and you heard Dr. Washbourn say it was lobar pneumonia ?—Yes. I may say I was very indignant at the inquest when I found that a post-mortem examination had been held the day before and I had not been invited, and the Coroner said : " Well, you shall see the child yourself. Is there a medical man whom you would like to attend with you," and I mentioned a medical man whom I should like to be with me on that occasion. When I got outside I said to the Coroner : " Well, now, about this post mortem, can we fix it up ? " and Dr. Washbourn said : " It would not be the slightest use : all the organs are cut to bits, and you would not be able to distinguish anything."

Mr. VACHELL. I wish you had asked that of Dr. Washbourn.

Sir EDWARD MARSHALL HALL. I was not instructed about it, and I do not see the importance of it. Anyhow, you never had an opportunity of seeing any of the dead body of the child ?—None whatever.

What is the kind of pneumonia that is a sequela ordinarily of diphtheria ?—Lobular pneumonia.

What do you say about the possibility or the ability, I should say, to distinguish between a lung that was affected by lobular and lobar pneumonia ?—I think any experienced person can distinguish by the naked eye the difference between lobar and lobular pneumonia in a post-mortem examination.

With regard to the condition of the heart, what do you say about that ; would an ordinary experienced post-mortem doctor be able to state whether the heart was normal, or not, on the view ?—Certainly, the colour is quite sufficient to distinguish it.

In the case of your attendances upon this child Nellie, was there anything you left undone that you ought to have done, or was there anything you did you ought not to have done, to your knowledge ?—No, nothing whatever.

And to-day, in spite of the evidence that has been given, what is your own opinion as to what Nellie was suffering from ?—She was suffering from ulcerated or septic, as it is called, tonsillitis, and she had lobar pneumonia, which was in my opinion responsible for her death.

Sir EDWARD MARSHALL HALL. Before your Lordship adjourns, I want to say this, that I have medical men, but my present intention is not to call any other witness but this gentleman. If by any reason of cross-examination I am forced to call them I still have the right so to do, but as at present advised I do not intend to call any other witness except this gentleman. So, therefore, if that is so, my learned friend would cross-examine and I shall probably have to re-examine.

Mr. JUSTICE LUSH. Very well.

Mr. VACHELL. Sir William Willcox has now marked the statistics which your Lordship wanted.

Mr. JUSTICE LUSH. Do those statistics bear out what you told me ?

Sir WILLIAM WILLCOX. Yes, my Lord.

Mr. JUSTICE LUSH. If you tell me that, that is all I want to know.

Sir WILLIAM WILLCOX. Yes, they do.

(*Adjourned to the following morning at* 10.30.)

Wednesday, 29th October, 1924.

Mr. JUSTICE LUSH. The discharge from the nose or throat and nose was not mentioned by the mother before the Coroner on the first day, was it ?

Sir EDWARD MARSHALL HALL. Yes, I think the discharge was mentioned.

Mr. VACHELL. Yes, it was.

Sir EDWARD MARSHALL HALL. But never that it was pointed out to the doctor, but she said it did exist, that is my recollection. We will look at it.

Mr. JUSTICE LUSH. Mr. Clements will look it up.

Mr. VACHELL. Your Lordship will find that in the examination by Mr. Haddock of Mrs. Burnham, the mother, on the first day : " I have a child named Leonard." Then at the end of the examination your Lordship will find this : " All three children had a discharge from the nose of a greenish colour with a little fluid in it."

Mr. JUSTICE LUSH. Was that the evidence given on August 1st ?

Mr. VACHELL. It is speaking of all three children she had, including the deceased.

MR. JUSTICE LUSH. It does not say in terms that that discharge was noticeable on the 1st August.

MR. VACHELL. No, I do not think attention was drawn to that; there is no distinction made.

MR. JUSTICE LUSH. It is a very important date for reasons I will point out later.

MR. VACHELL. Yes, my Lord, I quite understand that.

DR. WALTER ROBERT HADWEN, *recalled.*

Cross-examined by MR. VACHELL.

You have, I suppose, considered the efficacy of antitoxin as a remedy in cases of diphtheria?—I have.

Have you consulted statistics upon the subject?—I have.

Apparently you have furnished my learned friend, Sir Edward, with a copy of the statistics of mortality?—A few.

And you heard Sir William Willcox cross-examined about them?—I did.

Did you hear him correct certain errors that Sir Edward apparently had made in dealing with those statistics?—I did not.

Do you agree that the statistics show that since the introduction of antitoxin there has been a very susbtantial decrease in the mortality from diphtheria?—That all depends what kind of statistics you are dealing with. The statistics that Sir Edward Marshall Hall presented to the Court were the statistics of the Registrar-General. The statistics which Sir William Willcox gave to the Court were the statistics of the Metropolitan Asylums Board.

Do you know that Sir William Willcox dealt also with the statistics of the Registrar-General?—He made a few comments upon them, but he did not deal with them.

Did he give the results to the Court yesterday?—He simply commented upon the statistics which Sir Edward Marshall Hall presented.

Did not you hear Sir William Willcox in his evidence say that the statistics of the Registrar-General showed a decrease of at least 30 per cent.?

MR. JUSTICE LUSH. It is somewhere about that.

MR. VACHELL. I will accept that. Did you hear that?—I cannot say that I remember that. Perhaps my mind was concentrated upon what were the real facts of the case.

Did you hear him say that those statistics show that the death-rate in 1893 was 389 per million and that by 1923 it had been reduced to 71?—That was a single year.

Did you hear him say that?—I heard him say that, yes.

Do you accept the returns of the Registrar-General as being accurate?—I do.

And you observe that they were not challenged when Sir William Willcox had given his explanation of them?—Quite true.

Do you believe in the efficacy of antitoxin?—No, I do not; I consider it a useless and dangerous remedy.

You have said that you heard also the figures of the Hospital Boards in London dealt with. Do you agree that those show a very substantial reduction in the mortality where antitoxin has been administered?—They do, but I consider them a very unscientific collection of statistics.

You say you do not believe in it?—That is so.

Then you, I suppose, have never administered it yourself?—I have not.

Never given it a trial?—I have not.

Do you believe that it is right for anybody else to administer it?—Each one must act according to his own conscience.

Would you mind answering it a little closer? Do you think if any other medical man administers antitoxin he is doing a right or a wrong thing?—It depends entirely upon his own conscience. Each medical man must act as he feels to be right.

I am asking about your conscience; what do you think?—I am not going to give any answer to such a question.

Would you willingly allow any patient who was suffering from diphtheria, any patient of your own, to be treated with antitoxin by another medical man?—Not if I could help it.

Would you do your best to prevent it?—I would.

And you have, have you not, published articles and pamphlets in which you have attacked the whole system?—I have.

And scathingly referred to the practice of using it by medical men?—I have.

How many cases of diphtheria have you had amongst your patients in the last three years?—During the last three years I doubt whether I have had any at all; I cannot call to mind any.

Not any?—I do not think so.

There has been diphtheria in Gloucester during those three years, has there not?—Well, I daresay there have been some notified. I do not know that I have read the Medical Officer's report on the subject.

200 or 300?—Yes.

Have you notified a single case yourself?—Of course I am only speaking from mere memory. So far as I remember I do not think I have notified a single case during the last three years.

When a case of diphtheria is notified to the Medical Officer of Health, does he at once take steps to have the patient removed to an isolation hospital?—I cannot say.

Is that what is generally done; you know that?—It all depends. I have had a fair number of cases since I have been in practice in Gloucester in which the Medical Officer of Health has allowed me to treat the case at home.

How long ago was that?—That I cannot say.

Try, in years. I do not want to pin you too closely to a number of years?—I really cannot say.

The isolation hospital exists, does it not?—Certainly.

The Medical Officer is there?—Certainly.

Is it one of his duties to remove——

SIR EDWARD MARSHALL HALL. I must object to that question; there is no compulsion to remove, either for fever or diphtheria.

MR. VACHELL. My friend answers the question for you. Is it the practice of the Medical Officer of Health to remove these cases, if he possibly can, to the isolation hospital?—I believe it is, unless there is sufficient room for isolation at home.

To an infectious diseases hospital I think they call it, and is one of the first steps that he takes to administer the antitoxin treatment?—I have heard so.

This was a small house, was it not, where the Burnhams lived?—Yes.

And a family of children, four or five. Three of them have been mentioned, but there is another?—I think there were four children altogether.

Have you any doubt at all that if you had notified this case to the Medical Officer of Health—I am assuming, of course, that you thought it was diphtheria—that he would have taken steps to get these children removed to the infectious diseases or isolation hospital?—Considering the condition of the house I would have suggested that the child should have been removed myself.

But at any rate if you had reported it, you have no doubt the child would have been removed?—Undoubtedly.

SIR EDWARD MARSHALL HALL. He said more, "And I myself should have advised it."

MR. VACHELL. Do you doubt that if those children had been removed that they would have had the antitoxin treatment at once administered?—Of course I do not know what is done there; I have only heard that they do administer antitoxin.

You do not doubt that that is the first thing that would have been done, do you?—I cannot say. I do not know a bit what they do there; I have only what I have heard.

What do you think?—It is very likely that they would, such is the fashion of the time.

Do you think for one moment that they would have abstained from that treatment ?—I think it is very probable that they would have administered antitoxin.

And that, I take it, would have been not only against your views but against your conscience ?—It would.

Mr. JUSTICE LUSH. Why ? What is the distinction for this purpose between your views and your conscience ; I do not understand.

Mr. VACHELL. The views are he would not administer it himself because of his views, and his conscience tells him to do all in his power to prevent other people administering it. That is so, is it not ?—No, not exactly. My conscience is that which tells me to do what I believe to be right before God. I have nothing to do with other people.

And to try and make other people do what you think ?—Undoubtedly I should persuade in every legitimate way other people, as you would, to fall in with my views.

Am I right in saying—I think you have already told me—that you not only would refrain from applying this yourself but you would do all in your power to prevent anybody else applying it ?—To persuade other people not to do it also ; there is no question of compulsion.

And to prevent them if you could ?—It depends what you call prevention ; yes, I will admit that, because I quite agree that I consider the whole system ought to be stopped.

Mr. JUSTICE LUSH. I wish you would clear up that difficulty which your question raised in my mind. If a doctor's view is that antitoxin is a bad thing for a child, there is no question of conscience ; that is his view. If his view is it is a good thing you do not suggest his conscience would tell him still not to do it. Will you tell me what that means. What do you mean by saying as a matter of conscience you would not allow it to be administered ?—Because conscience is that which tells a man whether his acts are right or whether they are wrong.

But right in what sense ; do you mean whether antitoxin is a successful remedy, or do you mean something else ?—No, because I consider antitoxin a very dangerous remedy.

Your view is that it is not a safe and proper remedy ? —Undoubtedly, therefore my conscience would not allow me to make use of it.

Mr. VACHELL. You made some reference to it conflicting with the views of God in your opinion ?

Mr. JUSTICE LUSH. That is what puzzled me ; I want to know.

Sir EDWARD MARSHALL HALL. I did not think he said that.

Mr. JUSTICE LUSH. What do you mean ; the duty of a doctor is, I suppose, to do his best for the patient, is not it ?—Undoubtedly.

How does conscience, apart from a man's conscience telling him to do what is best for the patient, operate on your mind in these matters ?—I can only say that conscience is, so far as I understand it, that principle implanted in man which leads him to decide before God what is right and what is wrong, and therefore for me to give anything which I believe to be wrong would militate against my conscience as before God.

Mr. VACHELL. You go further than that, surely. Not only do you practise for yourself what you think is right, but you endeavour to prevent other people practising what you think is wrong ?—It depends in what way you use the word " prevention." I have written, as you rightly say, a good deal upon this subject. I have not advocated compulsion in any way whatever, but I do seek in every way in my power to urge other people that they shall not adopt that which I do not believe in.

And anything that you could do to prevent antitoxin being applied you would do ?—Certainly.

Mr. JUSTICE LUSH. On what grounds, that is what I want to understand ?—Because I consider it is both useless and dangerous.

Have you had a case in which you have found it worked out disastrously to the patient ?—No, but I know of cases in others. One of the very earliest cases was that of Dr. Langerhans, of Berlin, who injected antitoxin into his own child and it was dead in three minutes.

How long ago was that ?—I forget the date, but it is quite a historical note.

Mr. JUSTICE LUSH. I wish you would pursue this, Mr. Vachell, because I want to understand it.

Mr. VACHELL. You can understand, I suppose, the difference between holding and practising your own views, and the sort of missionary work of trying to persuade everybody else ?—Certainly.

You come in the latter class ?—I am in both classes. As a medical man I refuse to have anything to do with antitoxin. As the President of the largest antivivisection society in the world I do everything in my power to urge other people to follow in the steps that I pursue.

And one step further. I have put it several times, and I think it is necessary. You go further than that. I put it to you that you would do all in your power to prevent antitoxin being administered to any patient ?—Yes.

Mr. JUSTICE LUSH. What has antivivisection to do with antitoxin ?

Mr. VACHELL. Because it is a culture from a horse, this antitoxin.

Mr. JUSTICE LUSH. What light does that throw upon the question whether it is a dangerous or useful remedy ?

Mr. VACHELL. I do not know.

Mr. JUSTICE LUSH. What does it ?—The relationship between all these inoculations and vivisection is that all these inoculations are based upon experiments on animals.

Is that why you object to them ?—Oh dear, no. I object to antitoxin quite independently of that as a medical man ; I am speaking of my two characteristics, one as a medical man, and one in my public capacity in another direction.

Mr. VACHELL. In one of your pamphlets on this very subject of diphtheria antitoxin do you say this : " If people are able to believe that these weird and cruel methods of treating disease can be of any possible service one can only admire faith's response to a very big demand." That, I think, is one of the passages ?—That is quite correct.

Is diphtheria, in your opinion, an easy disease to diagnose ?—With care.

Mr. JUSTICE LUSH. Do you mean with care it is difficult, or easy ?—Easy, with care.

Mr. VACHELL. Nothing easier in the world, is there ?—It is quite easy to diagnose diphtheria.

Did you say before the Coroner : " It is quite easy to diagnose diphtheria, nothing easier in the world " ? —Yes, with care.

You did not say with care, but I have no doubt care is always necessary ?—I have a reason for giving that answer.

There would be no difficulty in your case in diagnosing it ; I mean you would have no difficulty, would you ?—I should certainly exercise care in the matter.

We have had certain symptoms spoken to here, and I would like to ask you something about them. Is one of the symptoms of diphtheria a thickness in speech ?—Yes.

Indicating trouble in the throat ?—Yes.

Another one sore-throat, possibly part and parcel of the other ?—It depends what you call a sore-throat. In tonsillitis the throat is very sore. In diphtheria, so long as the membrane does not cover the fauces there is not much soreness, and not much difficulty in swallowing.

Is a discharge from the nose of a yellowish-greenish character if tinged with blood one of the usual symptoms ?—Not one of the usual symptoms, but it does occur occasionally.

It is a symptom ?—Yes.

Mr. JUSTICE LUSH. Do you mean you notice a discharge tinged with blood with a child suffering from what shall we call sore-throat; would you, or would you not, suspect that it might be diphtheria?—One would always keep that in mind, of course.

I did not ask that quite; I asked you something more than that. Of course you would always keep it in mind. Would you say to yourself, if your patient was complaining of sore-throat, and had a discharge with streaks of blood in it: "I must see if this is diphtheria"?—I should certainly look with suspicion upon a thing of that sort.

Mr. VACHELL. And if the nose is affected by the diphtheria you always get that discharge, do not you?—Yes, I think one would say that you would.

Is a very foul and peculiarly foul breath one of the symptoms of diphtheria?—That is not by any means common. The foulest breath is really found with septic tonsillitis.

Is there a characteristic offensive odour about the diphtheritic breath?—I do not consider so, but I have heard that said in Court.

Have you never heard it said anywhere else?—No, I do not know that I have.

At any rate, you cannot detect the difference?—No, I do not set any store upon that point.

But the foul breath is, is it not, a very usual accompaniment of diphtheria?—I do not know that I have ever noticed any particularly foul breath. Of course, under those conditions the children's stomachs are often so very much out of order that they may get a foul breath from that cause, not necessarily from the diphtheria itself.

If there is membrane there is no doubt about that?—No, it all depends. When the membrane begins to slough then you get an odour very often, unless you keep such a thing as vinegar and water going frequently, and then you do not have the same extent of foul breath.

If you see membrane in the throat, that is a very strong symptom of diphtheria, is it not?—Undoubtedly, that is on the uvula, the fauces, the soft palate.

Mr. JUSTICE LUSH. That is a strong indication, is it?—Certainly.

Mr. VACHELL. Is there membrane in every case of diphtheria?—You cannot have diphtheria without membrane, because that is really what the term implies.

Does the bacillus of diphtheria sometimes give an exudation without, in the first place, forming membrane?—I do not know that the bacillus produces an exudation, but there is an exudation before the membrane forms.

Is it not the fact that that is always the case, there is always first the exudation?—Of course, there must be. The membrane is nothing but the consolidation of the exudation.

And does that consolidation, or I use the term we are all using, membrane, take about 24 hours to form after the exudation has commenced?—It is a variable time, sometimes it forms very rapidly, and sometimes it is slow in forming.

And the exudation, before the membrane has formed, gives the appearance of rawness, does it not, to the parts affected?—I would hardly say that, because we look upon rawness as that of a red colour, whereas the mucous membrane in diphtheria is of quite a pale mouse colour.

Has it the appearance of being inflamed, the affected part?—In diphtheria, do you mean?

Yes, before the membrane forms?—No, it does not.

You have spoken about the colour. Is it not the fact that it is only in very severe cases that the exudation patch has a greyish appearance?—In severe cases?

Yes, only in severe cases?—I would not say that. The fact is the membrane changes colour very considerably. You sometimes have the membrane quite white, a pale yellow wash-leather colour, sometimes dirty grey, and so on.

What I am putting to you is something in addition to that. Is it not a fact that the throat, not the membrane, but the affected part, before the membrane forms, only takes a greyish colour in very severe cases?—I do not think so at all.

Mr. JUSTICE LUSH. Would you mind asking Dr. Hadwen to tell us what he does consider are the indications of diphtheria, that is to say, the symptoms of it? You have asked him certain things?

Mr. VACHELL. Yes. There was another important one to deal with first, and then I will come to your Lordship's question. (To the Witness.) Does diphtheria also affect the air passages of the nose, the nasal air passages?—If the mucous membrane is swollen sufficiently it does.

And does that result in a yellowish encrustation in the nose?—Not necessarily.

Does it sometimes?—It might upon rare occasions; I cannot say I have been struck by it.

Now would you mind answering my Lord's question, and tell us what, in your opinion, are the symptoms of diphtheria?—The spread of a membrane over the uvula and soft palate, the cervical glands, that is the glands at the angles of the jaw, very much enlarged so that the jaw becomes practically square, there is not a very high temperature; the pulse is not very much above normal. The mucous membrane surrounding the membrane is of a pallid colour usually. Only one tonsil is affected, and the ulceration which occurs is usually afterwards covered by a membrane. I think those are the main symptoms and physical signs.

Mr. JUSTICE LUSH. Did you observe any of those symptoms on one of the days on which you attended this child?—No.

Not one?—Not one.

Not even on the 9th of August?—No. On the 9th of August the throat was perfectly clear.

Mr. VACHELL. As to those symptoms that you have named, are those only to be found in very severe cases that have been in existence for some time?—No, those are the signs, the pathognomonic signs.

In the first three days of an attack of diphtheria would you expect to find the glands swollen to the extent you have put?—That is one of the very earliest signs of diphtheria.

The jaw swollen to the extent of making the face appear almost square?—That will come on within two or three days.

You have heard Sir William Willcox give us his evidence upon this point?—Yes.

And you have heard him say that in many cases the glands are swollen to so slight an extent that it is only by palpation that you can discover it?—I do not accept Sir William Willcox's statement at all on that point.

Do you agree that with the swelling of the glands to the extent you have described, those cases are nearly always fatal?—Certainly not. I can remember now about 30 years ago a number of cases that I attended in which the whole of those symptoms were present. I can mention the name of the physician under whose care they were at the time, and whom I assisted, Dr. Shingleton Smith, of Bristol, and every one of those cases recovered, and no antitoxin was used throughout.

How many years ago would that be?—That would be, roughly, 30 years ago. It was when I was at the Bristol Royal Infirmary.

As a student?—I was in my last year.

Anything since then?—I have had a fair number of cases since then.

Mr. JUSTICE LUSH. About how many?—I saw a great many when I was in practice in Somerset.

How long ago was that?—That was, I should think, roughly, 32 years ago.

Let us come down to more recent times; take the last 10 or 15 years. How many cases of diphtheria?—I have had very few indeed of late years. There is not much genuine diphtheria about.

If you have had very few how have you been able to form an opinion as to the utility or otherwise of antitoxin?—I judge the utility of antitoxin, as in the case of any other remedy—namely, in the language of statistics.

Then you rely only on statistics practically ?—It is the only thing you can rely upon.

" I rely on statistics in support of my view as to antitoxin being a dangerous and useless remedy " ; is that right ?—Exactly.

Mr. Vachell. Do you agree that the very large majority of the members of the medical profession are in high favour of the utility of antitoxin ?—I do.

Mr. Justice Lush. You know they are ?—Yes.

Mr. Vachell. And that majority includes some of the most learned and reputed and skilful members of the profession ?—I quite agree.

Mr. Justice Lush. That is rather a responsibility, is it not ? If the majority of members, including the most eminent, are in favour of antitoxin, and if the Registrar-General's returns are as we know they are, and you have had very few cases, is not it rather a responsibility on your part to say you will not use it ?—The whole medical profession at one time were unanimously in favour of bleeding.

Never mind that, that is another matter ; cannot you deal with antitoxin ?—I judge a question, and I use my own intellect in order to judge whether I consider a case to be right or wrong, and I act accordingly.

But your intellect must work upon some materials ?—Certainly.

And you told us the statistics are what you work on ?—Yes.

They show that antitoxin is a most useful remedy ?—No, I do not agree ; I consider they show that they justify my view.

I should like to see some indication of it ; there is nothing I heard of yesterday in the statistics to show it is a dangerous remedy, is there ?—I will take the Registrar-General's returns, which I consider the scientific ground for statistical judgment.

Mr. Vachell. But you told me just now that you heard yesterday those figures given to the Court, that in 1893, which is just about a year, I think, or two years before antitoxin began to be used, the death-rate per million was 387. Then antitoxin came into use two years after, and by 1923 the death-rate had been reduced to 71 per million, and you accepted that.

Mr. Justice Lush. You accepted that ?—I certainly commented on it, but the learned Counsel took no notice of my answer.

What was that ; will you repeat it ?—That they were single years. There are such things as epidemics of diphtheria, and they vary. Sometimes there is a tremendous outbreak of diphtheria, and another time there is very little.

You have not dealt with my question. I wish you would repeat it for me ; I will put it again myself. What is there in the statistics to lead you to the conclusion that it is a dangerous and useless remedy ; that is what I want you to deal with ?—Allow me to turn to the Registrar-General's returns.

Yes, let me see what there is to justify that view ?—I will take the Registrar-General's returns on page 35. That is only just published within the last month. In the years 1871 to 1875, that is 25 years before antitoxin was introduced, the death-rate was 121 per million.

Mr. Vachell. Will you just stop there. You have gone back to an early date. Was that before the bacillus was discovered ?—The bacillus was discovered in 1883.

Mr. Justice Lush. The first time that the serum was prepared and cultivated and used was, I think, 1895 ?—That is so.

Mr. Vachell. This was the discovery of the bacillus ?

Mr. Justice Lush. That precedes the use of the serum.

Mr. Vachell. Yes ?—I go back to the date before the bacillus was discovered, or before antitoxin came in, that is the quinquennial years 1871 to 1875. Now I take the last quinquennial which the Registrar-General gives—namely, 1916 to 1920, and the death to the living population has risen in that quinquennium from 121 per million to 142 per million, that is, that it is 21 per million more than it was in 1871 to 1875.

Mr. Justice Lush. The death-rate from what ?—From diphtheria.

Mr. Vachell. Before the discovery of the bacillus, was croup treated separately from diphtheria ?—Croup was.

And you have excluded croup, have you not ? It is not included in those figures of diphtheria you have been giving us ?—All membranous croup is now included in diphtheria.

Mr. Justice Lush. Take your early date. If croup was treated separately you must add your death-rate for croup to diphtheria in order to bring it on the same line as the present figure. Will you do that for us. Add the death-rate for croup ?—He does not give it.

Let us have that figure. It is useless to compare one thing with two, which is what you have done ?—The diphtheria and croup together are 305 in 1871 to 1875, and in 1916 to 1920 it is 143.

Therefore instead of being what you say, a rise in the death-rate, it is about half what the death-rate was. Just look at that for yourself. If you take diphtheria and croup together, which is the way it is treated now, you find, do you not, that the death-rate instead of increasing has fallen from 305 to 143. Is not that so ?—That is so, undoubtedly.

Why do you compare the wrong thing. Why do you compare one thing only in 1875 with two things in 1916 ?—Because the Registrar-General separates them himself. He gives the diphtheria by itself and the diphtheria and croup by themselves. I was going on a wrong argument. Have you my pamphlet there ?

Before you turn to your pamphlet do clear up this point ; it is a perfectly simple equation. If you take from your statistics diphtheria and croup in 1875, and you take diphtheria and croup in 1916, then you find instead of the death-rate increasing it has fallen from over 300 to 142 ?

Sir Edward Marshall Hall. On the assumption that croup is diphtheria.

Mr. Justice Lush. They are grouped together, you see. He is working on statistics. Is not that right ?—Yes.

Mr. Vachell. He takes it at one end and not the other.

Mr. Justice Lush. If that is right how do you justify your statement that the statistics show that this treatment is useless and dangerous ?—Because this is the question of croup being thrown in with the diphtheria. In the early days, and in the last stage, the last quinquennium, the croup is now practically not recognised in relation to diphtheria at all.

Mr. Vachell. Is it called membranous croup ?—Called membranous croup.

Is it the same bacillus as diphtheria ?—Well, of course.

Well, is it ?—I myself do not accept any bacillus as the origin of diphtheria at all.

Mr. Justice Lush. Why ; on what ground do you base that view ? Dr. Hadwen does not accept the bacillus theory with regard to diphtheria. On what do you base that view ? Is that the result of study ?—Undoubtedly. I look upon the bacillus as the result of disease and not its cause.

Mr. Vachell. You recognise the existence, of course, of the bacillus ?—Yes, certainly.

And I am not quite sure that you gave me an answer to this, namely, as to whether that bacillus is not the same in diphtheria as in croup ?—I expect it is the same. I expect it is found in the same connexion.

Did you base your objections to antitoxin on those figures that you have just been giving to my Lord ?—Yes, to a large extent.

Not, I take it, on the particular edition of statistics that you have before you ?—I follow the Registrar-General's statistics year by year.

And on the same basis that you have dealt with them before your attention was called to the error ?—Yes.

And on that basis was it that you refused in all cases to administer antitoxin, and made, indeed, a crusade against it ?—Largely upon the ground of statistics.

Mr. JUSTICE LUSH. Is there anything else ?—Certainly. Another reason is that I consider the injection of poisoned horse blood into a human system is not a scientific method of treatment.

Mr. VACHELL. But it is adopted by men with the highest knowledge of science, I think ?—Yes.

Whether the bacillus is the origin or the result, the evidence of the disease, I suppose its discovery in a case where a person is suffering from these symptoms, would make the matter beyond doubt that he was suffering from diphtheria ?—Certainly not. Loeffler himself, the discoverer of the bacillus, found the diphtheritic bacillus absent in 25 per cent. of the cases of genuine diphtheria.

But if you did find it. I am not saying you do not. Loeffler is not here, I suppose, is he ? He was a German scientist, was not he ?—Yes.

What I am putting to you is this : If you did find the bacillus in the throat of the person who was suffering from these symptoms you would know at once that they had diphtheria ?—Oh dear, no.

Not even then ?—No.

Mr. JUSTICE LUSH. What ?

Mr. VACHELL. If you found the bacillus in the throat of a person who was suffering from these symptoms.

Mr. JUSTICE LUSH. You said then you would not diagnose diphtheria ?—I should judge diphtheria by the clinical signs, and seeing that the diphtheria bacillus is absent in a large number of cases of genuine diphtheria, and that it is present, as Professor Osler says in his work, in every kind of sore-throat from a simple sore-throat to a septic angina, and that it can also be found in healthy throats, and, as one medical witness has said here, even in inanimate objects, I cannot possibly see what the diphtheritic bacillus has to do with the subject.

Come to it a little closer. I have mentioned certain symptoms to you, and I understood you to agree that they by themselves were indicative, we will call it, of diphtheria ?—Certainly.

If in addition to those symptoms you discovered the actual bacillus itself in the throat would you have any doubt that that is what diphtheria is ?—I should pay no attention whatever to the diphtheritic bacillus, because these bacilli are simply, judging by the great Professor Bachu, the normal constituents of the body which have been altered by reason of their morbid environment.

Then may I take it you would not take a swab ?—I would not ; I see no reason in it.

Would that apply to all diseases like typhoid fever and everything else, in your opinion ?—Yes.

Do you discard the whole of the bacillus theory ?—I discard the whole of the germ theory causing disease.

In all diseases ?—I believe it is an absolutely unscientific idea.

You think the whole of the medical profession practically have all gone wrong in attaching importance to the bacillus cultivation ?—I consider so.

You set up your judgment against them all ?

Mr. JUSTICE LUSH. All based on statistics and nothing else ?—No, I have already mentioned I consider it an unscientific method of treatment.

I do not at present understand that ; that is only a name you give it, unscientific ?—I have mentioned that to inject poisoned horse blood into a human body is to my mind contrary to even the dictates of nature.

Mr. JUSTICE LUSH. Now we know where we are at all events.

Sir EDWARD MARSHALL HALL. I would like to take your Lordship's ruling on this ; I have been loth to interfere in any way ; I do not want to, but does your Lordship think this cross-examination is relevant to this issue ?

Mr. JUSTICE LUSH. I quite agree with this, that I do not think in this case the Jury have to consider whether there was neglect or not in respect of the bacillus, because Dr. Hadwen's view is, and his contention was all through, that there was no diphtheria, and he had not to consider the antitoxin treatment.

Sir EDWARD MARSHALL HALL. I agree this might be most interesting if the inquiry is, is Dr. Hadwen right or wrong in his view.

Mr. JUSTICE LUSH. No, but I cannot shut it out because it is going to credit.

Sir EDWARD MARSHALL HALL. That I agree; that is why I did not intervene before. It also goes to something else ; it goes to prejudice.

Mr. JUSTICE LUSH. I cannot shut it out. Let me be clear ; I think this cross-examination is relevant because it goes to what one ordinarily calls the credit of the witness, I do not mean in respect of truthfulness but in respect of the care he takes in things he deals with, but in itself it is not to the issue.

Mr. VACHELL. It is no personal attack on Dr. Hadwen at all. (To the Witness.) May I take it that holding the views that you do you would consider it positively harmful to any patient of yours to be treated with antitoxin ?—I should.

As to the swab I will leave that ; I may take it you never have used the swab ?—I never have.

You have never submitted one to a bacteriological examination ?—Never.

Do you agree with this, that the bacteriologist, at any rate, on examining the swab can detect the presence of the bacillus if it is there ?—Yes, I have many a time done it myself.

Leonard was the first of these children you dealt with ?—Yes.

You suspected it might be a case of diphtheria, I gather ?—Yes, I had it in my mind.

You have heard what the mother has said about the symptoms ; you deny it. It is no use going over them one by one with you. You deny, I understand, that there were any of those symptoms in Leonard's case ?—I saw nothing of them at all.

Nothing of the symptoms ; I do not mean the conclusion ?—No, the symptoms.

No discharge and no odour ; neither of those ?—No.

You heard the mother say that at one date in the illness—I think it was the 24th—what day were you called in ?—To whom ?

To Leonard ?—I cannot say whether it was the 21st I called first.

You heard her say that he spat up something which as she described it led one to believe it was membrane from the way she described it. You heard her say that ?—No.

In the witness box ?—With Leonard ?

Mr. JUSTICE LUSH. I am not aware of it.

Mr. VACHELL. I am very sorry. It was before the Coroner.

Sir EDWARD MARSHALL HALL. No. Please do not make these remarks.

Mr. VACHELL. I am going to withdraw it altogether if it was not said here.

Mr. JUSTICE LUSH. I do not think it was.

Sir EDWARD MARSHALL HALL. I am very confident about it myself ; I have no recollection of it, and apparently the Jury are of the same view.

Mr. JUSTICE LUSH. I am not aware of it.

Mr. VACHELL. I am very sorry that that should be so. One is usually misled by looking at the other examinations.

Mr. JUSTICE LUSH. Quite. I wish you would ask Dr. Hadwen to tell us again how often he attended Leonard. You went every day to him, did not you ?

Sir EDWARD MARSHALL HALL. He said five times.

Mr. JUSTICE LUSH. You attended on consecutive days ?—Yes, I did.

Mr. JUSTICE LUSH. Therefore as far as Leonard is concerned you cannot be said not to have given him enough attention in point of the number of visits.

Sir EDWARD MARSHALL HALL. Your Lordship will not forget yesterday that he said Leonard had the worst throat of the three.

Mr. JUSTICE LUSH. And he went to Leonard every day for three or four days.

Mr. VACHELL. Yes. Gladys was the next case. Did you see no signs in her case ?—None whatever. There was really very little the matter with her.

Did you in any way connect her illness with that of Leonard's ?—I presume that it was the same kind of throat. The septic tonsillitis runs right through a family, generally speaking.

Whatever it was, it was something that was infectious, is that it ?—It depends what you call infectious. I think the condition of the house was such as would be very likely to produce an atmospheric state calculated to result in tonsillitis.

Then you have the little girl who died, Nellie ; she was taken ill in the same way ?—Yes.

Did you connect her illness with that of her brother and sister ?—Yes.

By infection ?—Yes ; I do not mean from one person to another, but the atmospheric condition.

Would that be because the bacillus had passed from one of the other two children to her ?—Oh dear no ; as I have already said, I do not believe in the bacillus ; I believe that these result from a chemical poison, an atmospheric chemical poison.

You do not think, then, that disease is capable of being communicated from one person to another by bacillus ?—Not by the bacillus, but it can be communicated in many cases—small-pox, for instance, is very infectious.

We had better not, I think, talk about small-pox ; let us deal with diphtheria. In that case do you think that the disease was communicated from one to another by bacillus ?—No, I do not.

Mr. Justice Lush. What is your theory as to communication, then ?—An atmospheric condition.

Mr. Vachell. That is consistent with the bacilli being in the atmosphere, is not it ?—No bacillus has ever yet been collected from the atmosphere, cultivated, and injected into a human being, and produced the disease with which that specific bacillus is supposed to be the cause. Pasteur was challenged again and again to do that, and he never did it.

That means no, does it, in answer to my Lord's question that you do not think it is the bacillus in the atmosphere ?—No, I believe it is the chemical poison.

The atmosphere without the bacillus, is it ?—Yes.

It is a chemical poison ?—There is no proof that the bacillus exists in the atmosphere.

Has any disease ever been traced by the analyst to a chemical origin in the atmosphere ?—That is a mystery that no one has ever yet been able to discover.

I only want to know, has it ever been traced to a chemical origin ?—No, because you cannot discover in the atmosphere any specific chemical cause for it.

So you put it down to something in the atmosphere ?—We only know that insanitary conditions produce it.

In your view would it be perfectly safe, then, to transplant a bacillus, or bacilli, of diphtheria from a person suffering from diphtheria into a healthy throat ?—To transplant ?

Yes, to transfer ?

Mr. Justice Lush. Take a patch with bacilli upon it, and put it into the healthy child's throat ; would you like to be the child, or would not you mind ?—If it were the bacillus itself I should not hesitate, separated from its surrounding parts, I should not hesitate at all about that bacillus being put into a healthy person ; it would have no effect.

Mr. Vachell. Because you can get the bacillus with healthy surroundings, cannot you, from a culture ?—You can get the bacillus in all manner of healthy throats.

I mean if you wanted to get a bacillus, pure and simple, without any surroundings that would be of danger, you can do it ; you can get them ?—It is very difficult ; they are microscopic.

You say there would be no danger at all in having those placed in the throat of a healthy person ?—There is no proof that a specific bacillus has ever caused a specific disease.

When you saw Nellie was she suffering in the same way as her brother and sister ? —Yes, just the same.

When you saw her on the 1st of August did diphtheria cross you mind then ?—One always keeps it in mind, as far as that goes.

Did it ?—Of course it did.

You, of course, realised at that time if you took a swab you could get it examined bacteriologically by Dr. Washbourn, the official bacteriologist, who lives in the same City ?—Yes.

Did you know that would be about the first step that the ordinary medical man would take in such a case as this ?—It is the first step, I believe, that most medical men do take.

Mr. Justice Lush. I do not quite follow that. A medical man, if he only examines a throat, and finds it merely inflamed and red, with no indicative symptoms of diphtheria does not take a swab ?

Mr. Vachell. That is the question I put. I put to him that he found the little girl in a certain condition ; diphtheria was in his mind, and he agrees with me, in those circumstances, the ordinary medical man would take a swab ?

Mr. Justice Lush. Is that what you mean ? It is the fashion to take a swab in the case of practically every sore-throat to-day, and the result is that the vast number of simple sore-throats are now called diphtheria because they find diphtheria.

Do you mean whenever a child, or grown up person, has a sore-throat, the doctor always takes a swab ? That has become the fashion.

Mr. Justice Lush. That was not my view ; I thought it was only where there were some symptoms which would lead a doctor to suspect it might be serious.

Mr. Vachell. Your Lordship remembers this part of his answer, that diphtheria was in his mind.

Mr. Justice Lush. He said it is always in his mind. —Whenever there is a sore-throat one naturally thinks of diphtheria.

Did you see nothing to indicate in that child Nellie on the 1st August that the throat might be something more than an ordinary sore-throat ?—I saw nothing whatever.

Mr. Justice Lush. Because that, to my mind, is one of the most important questions in this case.

Sir Edward Marshall Hall. That is the crux of the case, I believe.

Mr. Justice Lush. The doctor did not go again for three days, and one must know whether he saw anything in the child's throat on the 1st of August to indicate that it was a case requiring real care.

Mr. Vachell. If your Lordship pleases. (To the Witness). You examined the child's throat, did you ? —Yes.

By putting your finger into the mouth to depress the tongue ?—No. I explained yesterday that in nine cases out of ten you can see a throat perfectly clearly by telling a child to open its mouth, breathe in, and say " Ah," and the uvula and soft palate rise up, and you get a full view of the whole thing. You only need to put the tip of your finger on the tongue to press the tongue slightly down.

You do not depress the tongue at the tip, do you ? It is not there you put your finger. You have to put your finger in some way ?—In nine cases out of ten you have no need to put your finger in at all.

That, apparently, is what you think is the best way ? —I do.

Do you agree that the usual way is to ask for a spoon ?—Yes, I think most people do, but, as I said yesterday, I consider the finger is the best tongue depressor you can have. Children are frightened of instruments.

Do you say you can see the tonsils by using your finger as a depressor ?—Yes.

You cannot see them until you depress the tongue, can you ?—Oh dear yes, in the majority of cases I never have to use my finger at all. It is a pure knack.

Did you use your finger in looking at the throats of two of the other children ?—I cannot say ; I may have done.

Mr. Justice Lush. What about Leonard ; did you treat him as you did Nellie ?—Exactly the same.

Mr. VACHELL. If this had been diphtheria what would your treatment have been ?—I should have put hot fomentations round the throat, and have painted the tonsils with glycerine three or four times a day.

Mr. JUSTICE LUSH. Is that an antiseptic, or has it antiseptic qualities ?—It is partly an antiseptic ; it is hygroscopic, that is, it draws the water, the fluid, out from the mucous membrane, and permeates the whole of the mucous membrane. Glycerine is one of the most valuable remedies for application in the Pharmacopœia.

Mr. VACHELL. Would you have cautioned the mother that the child must be kept in a recumbent position ?—I should.

Would you have made frequent attendances on the child ?—I should have called at least once a day.

You would not, I take it, have notified the authorities, would you ?—Had it been diphtheria I should, of course.

And would you have advised the removal of the child to the Isolation Hospital ?—I should, under these circumstances.

Mr. JUSTICE LUSH. You did not notify Leonard's case, of course ?—No.

Mr. VACHELL. None of these things, of course, were done by you in this case ?—No, of course not.

In fact you did not treat it as diphtheria at all ?—No.

Sir EDWARD MARSHALL HALL. That is admitted.

Mr. VACHELL. She is quite a respectable woman, the mother, Mrs. Burnham, is not she ?—Quite.

And evidently regarded you as the medical man of her choice ?—I have always got on with her exceedingly well, and she has got on exceedingly well with me.

And she has no animus against you ?—I do not see what grounds she has for it.

Do you know Mrs. Taylor at all ?—No.

Or did you know Mrs. Peachey ?—No.

Or the brother-in-law ?—No. I know nothing about them.

They none of them, at any rate, have any ground for hostility to you ?—Not that I know of.

And they are respectable people ?—Yes.

You have heard from all those four people statements as to the different symptoms they observed during the child's illness. Do you say they are all mistaken ?—I am afraid I must say that they are. I cannot understand it.

You have heard as to the smell that on the occasion that the little child went down for the drink of water on the 7th the mother had actually gone out for a disinfectant because the smell from the child was so bad. Did you observe nothing of such a smell ?—Nothing whatever.

Not at any time ?—Not at any time.

You have heard the mother say she drew your attention to membrane formed coming from the nose ; is that untrue ?—That she stated on the last occasion. She did not mention that on the two previous occasions.

What do you say to it ?—I never saw anything of the kind.

Was the child drowsy when you were there ?—No.

Not at any time ?—Not at any time.

Mr. JUSTICE LUSH. Not on the 9th ?—Yes, on the 9th the poor little thing was absolutely ill.

You must eliminate that ?—Yes.

Mr. VACHELL. On the 6th you say the child was sitting up and smiling ?—Yes.

Nothing the matter with her, practically ?—No, except exceedingly weak, a poor ill-conditioned child.

Do you accept it that the child died of diphtheria ?—Certainly not.

Mr. JUSTICE LUSH. You say you do not now agree ?—Oh dear no. I was quite sure the child never had diphtheria, and never had a symptom of it.

Mr. VACHELL. You do not agree, then, that she died of it ?—Certainly not.

Do you accept it that the other children, Gladys and Hilda, whom you never attended I know, and the little playmate, Olive Cornock, had it ?—I know nothing about those children.

I will leave out Hilda and the other, but do you agree that Gladys was suffering from diphtheria ?—Oh dear no, it was simply the septic tonsillitis which ran, as it does run, through a house.

Mr. JUSTICE LUSH. I do not follow that, if I might interpose with a question. Have you heard Dr. Washbourn give us the result of his post-mortem examination ?—Yes.

And he described the membrane he found, and things that you yourself say would be symptomatic of diphtheria ?—No, there was no membrane found in the throat at the post-mortem examination.

Mr. VACHELL. Yes.

Sir EDWARD MARSHALL HALL. No ?—None whatever.

Mr. VACHELL. First of all, on the last day the 9th ?

Sir EDWARD MARSHALL HALL. Do not let my friend pass away from it. My friend is contradicting this answer, and he says he has evidence that there was diphtheritic membrane found in the throat. I challenged that, and Sir William Willcox accepted that. It was in the lung.

Mr. JUSTICE LUSH. I thought Dr. Washbourn gave one of his reasons for saying it was a diphtheritic membrane.

Mr. VACHELL. A loose piece of membrane which had escaped, indicating where it had come from, and it was on the top of the lung.

Sir EDWARD MARSHALL HALL. It was not found in the throat.

Mr. JUSTICE LUSH. No, but it had been somewhere in the child's mouth.

Mr. VACHELL. It was in the lung ?—Not necessarily.

Mr. VACHELL. Dr. Washbourn said he found these raw, I think was the term used, patches in the throat, from whence it had come.

Mr. JUSTICE LUSH. That is what I meant, and what I thought I said.

Sir EDWARD MARSHALL HALL. I do not say my friend is deliberately evading the point, but my learned friend said that Dr. Washbourn said that this membrane was found by him, post mortem, in the throat. I say Dr. Washbourn never said anything of the kind. What he did say was : "I found membrane I believe to be diphtheritic. I found a place in the throat which was raw, and I drew the conclusion that that membrane I found in the lung had come away from the sore place in the throat."

Mr. VACHELL. My friend's witness does not require all this assistance, at least, I think not. What I have said is exactly that ; I have not misrepresented Dr. Washbourn's evidence. Your Lordship has repeated it, and I am exactly with it. There was this, in addition, that he also found the vessel, the bronchus of the right lung, thickly coated with diphtheritic membrane, some of which had grown in situ.

Mr. JUSTICE LUSH. Accepting those as facts, assuming that Dr. Washbourn is right in what he said he saw, and coupling them with the fact that when the swab was bacteriologically examined the diphtheria microbe was found, would that not persuade you that it was, at all events, in all probability a case of diphtheria ?—No, my Lord. The point is this. He found some membrane in the bronchus. That membrane he said he believed to be diphtheritic. He never examined that microscopically, and therefore he can produce no proof, and no authority, that it was diphtheritic. Further, it is quite a common thing, when a child has croupous pneumonia it must be remembered that lobar and croupous pneumonia are the same thing, and the words croupous pneumonia are given to lobar pneumonia because it is accompanied by a membranous exudation which is so like croup that you cannot distinguish it, and this membrane, both in the larynx, on the back of the œsophagus and in the bronchus, might all have been the result of an ordinary inflammation, spreading up from the croupous pneumonia which had affected the lung.

Mr. VACHELL. Dr. Washbourn has had some experience ; do you agree with that ?—Certainly, very large experience.

He has been a bacteriologist for some time ?—Yes.

How long ?—I cannot say.

Quite a long time ?—Yes.

And he is regarded as a very honourable and upright gentleman ?—I have every respect for Dr. Washbourn.

Do you say that Dr. Washbourn, then, has made a mistake about this membrane ?—It is not a question of making a mistake ; it is a question that he gives as his opinion that this was diphtheritic membrane for which I say he has no authority.

Did you ever see it ?—No, unfortunately, I did not. I ought to have seen it.

He did ?—He did.

Do you set up your opinion against his ?—I set up my opinion, because it is not a question of opinion against his opinion. I say he has never proved that it was diphtheritic. He had no microscopic examination.

What about the growth in the bronchus ?—It was pneumonic, croupous pneumonic.

The membrane he saw there ?—That membrane was, of course, the result of the croupous pneumonia.

Is diphtheritic membrane quite easy to identify ?—Yes, I agree.

And you have heard Dr. Washbourn who, I take it, is a careful gentleman ?—Certainly.

You have heard him say that that membrane in the bronchus tube was diphtheritic ; what do you say to that ?—I again say he has no authority for saying so, he never examined it microscopically. Sir William Willcox himself said in the witness box before the Magistrates that he had not done that, and therefore he could not definitely prove that it was diphtheritic.

Mr. JUSTICE LUSH. What does the microscope reveal when you examine the membrane ?—It reveals the bacillus which is supposed to be associated with diphtheria or pneumonia, whatever it may be, and therefore gives to it its name.

Then you do attach importance to the fact of whether the bacillus is, or is not, in the membrane ?—No, I am simply arguing from their standpoint.

No, let us keep to the point, if you do not mind. I asked what good a microscope would do, and I thought you said it would reveal the presence of the bacillus there. Did not you say that ?—I did.

But a short time ago, when you were asked about this bacillus, and the advantage of taking a swab, you said it did not matter whether the thing was examined or not, because the presence of the diphtheria bacillus would not show it was diphtheria?—You misunderstood me.

I wish you would make me understand ?—Whether a thing is diphtheritic or not according to the recognised fashion of the time, it must be associated with a certain germ. These membranes are all practically alike, and it is impossible, from naked-eye appearance, to judge whether it is diphtheritic, pneumococcic, or any other kind of membrane ; you must examine it by the microscope to discover. Osler gives two pages to diphtheroid membrane, that is membrane in which you cannot tell the difference between diphtheria and the other membrane unless you examine them microscopically, and he never did that.

Mr. VACHELL. You spoke about what Sir William Willcox told us, or what you say he said before the Magistrates ?—Yes.

Do you know that what he said as to microscopical examination referred to fatty degeneration of the heart, and not to membrane ? Will you find the passage ? I challenge my learned friend to find that passage.

Sir EDWARD MARSHALL HALL. What he said is within my recollection. He said : " I had no need to examine it microscopically, because I could tell it from the view, I was so certain."

Mr. VACHELL. That is not what the Doctor has tried to put upon us, but that Sir William Willcox admitted before the Coroner that you could not identify the diphtheria membrane without a microscope.

Mr. JUSTICE LUSH. That is what he said ; let us see if that is right.

Sir EDWARD MARSHALL HALL. It was not before the Coroner ; he did not appear there.

Mr. VACHELL. It was before the Magistrates.

Sir EDWARD MARSHALL HALL. I can find that Dr. Washbourn said it before the Coroner. He said : " It is necessary to have a microscopic examination to decide between them," that is the condition of the pneumonia. " I made no microscopic examination."

Mr. VACHELL. Of the pneumonia ?

Sir EDWARD MARSHALL HALL. Of the lung.

Mr. VACHELL. The point I put is the membrane ; this piece of loose membrane he found.

Sir EDWARD MARSHALL HALL. That was found in the lung.—I did not understand you were referring to the bit of loose membrane ; I understood you were referring to the membrane that choked the bronchial tubes.

Mr. VACHELL. First of all as to the loose membrane what do you say as to that ?—My own opinion is that the loose membrane was coughed off from the lung itself.

The question is, would Dr. Washbourn, in your opinion, be able to identify that ? He said that that was diphtheria membrane.—He had no right to call it diphtheria membrane if he did not examine it microscopically.

Then you say that without a microscopic examination he could not identify it ?—No, he could not.

Has he ever said that himself ?—I do not remember. No, I do not think he has.

Has Dr. William Willcox ever said it ?—Sir William Willcox stated definitely that Dr. Washbourn had not thoroughly conducted this post-mortem examination. If I have the paper I can find it.

Will you answer the question ? Has Sir William Willcox ever said that Dr. Washbourn could not identify the loose piece of membrane ?—I do not know that any reference was given to that at all.

As a matter of fact have they not both said that it could be identified, and easily ?—I do not know ; I do not remember that. All I can say is that it cannot.

As to where it came from, you say it would be coughed up ?—It may.

Would there be some raw spot from whence it had come ?—No, I think it is not at all unlikely, when Dr. Ellis punctured the lung, that he set loose a portion —he went into a bronchus, and set loose a portion of the exudation—and that was the reason why it set up a reflex cough, and brought it on ; that is my theory.

As to the bronchial tube, where it was found actually growing, what is your view as to that ?—That, of course, was part of the pneumonia affection.

Dr. Washbourn has told us that that was diphtheria membrane ?—I say he has no authority for saying so.

Do you say that Dr. Washbourn is mistaken again about the membrane in the bronchial tube ?—I do not understand your question.

What I want to know is this : We have had here a well-known Doctor who, for some years, has been the bacteriological examiner. He tells us positively that he found diphtheria membrane growing in the large bronchial tube of the right lung ?—But, as I have already said, he never bacteriologically examined it.

Mr. JUSTICE LUSH. We shall not get much further with it.

Mr. VACHELL. No, I am afraid not. (To the Witness.) Then you believe in bacteriological examinations for one thing, but not for another ?—No, I do not believe in it at all.

You heard Dr. Washbourn say that he also found certain raw patches in the throat from which, in his opinion, that loose piece of membrane had probably come ?—He made use of that expression for the first time in this Court.

He said it ?—He said it, but in his official report, and in the statements he made previously, he never used that word " raw " at all.

You mean, then, we are to disagree with him, that he did not find anything of the sort ?

Sir EDWARD MARSHALL HALL. He said raw.

Mr. VACHELL. Inflamed and raw. It is the difference between inflamed surface and raw.

And of such a character that he said that, in his judgment, the loose piece had come from it; what do you say as to that?—He has no authority for saying so.

Was it there?—How could it have been there?

Were the patches there?—There was no membrane in that throat when I saw it by daylight on Saturday morning, and there could have been no membrane in that throat on Saturday night, and if there was that membrane on Saturday night it ought to have been at the post-mortem, and there was none.

It is not said that the membrane could be seen from the outside. The membrane he was speaking of was out of sight, but in this large bronchial tube?—Very well, then I say that was a continuation from the croupous pneumonia, and had nothing to do with diphtheria.

He also said that there were patches in the throat from which he thought the loose piece had come which could be seen from the mouth; what do you say as to that?—He used that word "raw" upon this occasion. I say he had no authority for doing so. He simply said it was red and inflamed.

Red and inflamed; what do you say as to that?—I say he has no right to say that the membrane came from there.

As to the existence of the patches, what do you say?—That is something he has added since, and has nothing to do with what he said previously.

Then you mean we are not to believe him?—I think he has rather gone upon his imagination, to some extent. I do not want to say anything with regard to Dr. Washbourn. I thoroughly respect him, and I do not want to be made to say that what he said was untrue.

I do not want you to say anything, but I would like to know this, whether you deny that there were these inflamed patches in the throat?—I accept the statement that there were inflamed patches. He said so at the onset, and I quite accept the statement.

Did you see those yourself?—How could I see them when I was not allowed to be at the post-mortem examination?

On the Saturday night, when the child was alive?—I was not there on the Saturday night.

On the Saturday morning?—On the Saturday morning the throat was inflamed and red, much about the same as Dr. Washbourn has described at the post-mortem examination, but there was no membrane there.

But it was inflamed and red?—Certainly.

I thought it had all cleared up by the Wednesday?—Of course the ulceration had gone from the tonsils, but there never was any membrane on the uvula, or soft palate, and the fact of it being red and inflamed, not only as I saw it, but as Dr. Washbourn saw it at the post-mortem examination, proves conclusively that it was not diphtheria.

Mr. JUSTICE LUSH. There must be no demonstration in Court. I am surprised that in a case of this kind people should give way to their emotions when an answer is given. (To the Witness.) Are you not influenced in your view about the existence of diphtheria by the views you hold of the part the bacillus plays in the disease?—I really think, as the result of a long experience, and a very careful attention to all great questions of the day, that I am capable of forming an impartial judgment absolutely free from bias of every description upon a vital matter of this sort.

Are you not desirous of constantly learning from statistics?—I am always trying.

Wait one moment—and the experience of other doctors, especially those who have given themselves up to the study of bacteriology? Are you not desirous of always learning, and seeing whether you cannot get more knowledge than you had before?—Most decidedly I am, but I look upon the whole of this Pasteur theory as a retrograde movement; it is going back, not going forward.

I wish I could see some justification for that view; I cannot find any. When you are asked why you hold these views you fall back upon statistics. Then you make a mistake, as has been pointed out; you have compared two wrong figures. If that has gone, what is left which forms the basis of this strong view you hold? If you eliminate statistics what else do you rely upon, justifying your differing from practically the whole of the medical profession?—The basis of the whole theory is that a specific germ is the cause of the specific disease, and I maintain that those who hold this view have never yet proved it. Prof. Koch wrote to Pasteur, and said: "If that theory is correct the germ must be found in connexion with every specific disease; it must not be absent from that disease; thirdly, that it must be cultivated apart from the disease, and lastly, that when the culture is inoculated into a human body it must produce that identical disease." Pasteur accepted that theory, and, as far as I know, it has not yet proved to be true. The Editor of THE LANCET himself has declared that, based on Koch's postulates, the whole germ theory falls to the ground.

Mr. JUSTICE LUSH. My question was not quite that which Dr. Hadwen answered. I asked him a simple question whether he did not think he was influenced in his view about the presence of diphtheria by the strong view he took about the bacillus. I did not invite that long explanation.

Mr. VACHELL. No. My learned friend seems to think I have.

Sir EDWARD MARSHALL HALL. I was dealing with the whole line of this cross-examination. My friend knew before we came into Court that Dr. Hadwen holds extreme views on this subject. If you cross-examine him in this way, and he is honest, you must expect him to rather flare up.

Mr. JUSTICE LUSH. One of the questions the Jury must consider is whether there was diphtheria in this child.

Sir EDWARD MARSHALL HALL. If your Lordship so directs them of course I cannot prevent it, but I think it is entirely immaterial in this case on a charge of manslaughter.

Mr. JUSTICE LUSH. You must give me credit for not forgetting that I told you frankly I shall tell the Jury—it is entirely for them—that even if they think there was gross neglect or culpable negligence that that does not of course dispose of the case at all. They will have to find that even on the hypothesis that there was gross neglect, and on the hypothesis that there was diphtheria, that Dr. Hadwen caused the death of that child or accelerated it before they convict him.

Sir EDWARD MARSHALL HALL. I agree. I was going further than that. I knew your Lordship was going to say that. I shall contend, when your Lordship gives me an opportunity of stating what I contend, that even if in fact this child had diphtheria that is really not relevant except for the purpose of deciding whether there was gross neglect or not.

Mr. JUSTICE LUSH. That may be so, but I cannot shut it out upon that question. That is the only way in which it is material.

Sir EDWARD MARSHALL HALL. Does your Lordship propose to ask specific questions of the Jury?

Mr. JUSTICE LUSH. No, not at all, but I shall tell them they will have to find two things before they can convict upon this indictment, first that there was culpable, wicked, criminal neglect, whatever your expression may be, and secondly, and this is vital to the case, that that neglect if they find it existed did cause or accelerate the death of this child. Unless the Jury find both against Dr. Hadwen they must acquit him.

Sir EDWARD MARSHALL HALL. That raises the important question on the first part of your Lordship's judgment. Will your Lordship direct the Jury in order to constitute wilful or gross neglect of the kind your Lordship indicates, that it must be actually wilful and gross neglect, and I submit this cross-examination is proving it does not exist in this case, because if it was a neglect, and because if it was wilful, it was based upon a conviction that this child was not suffering from diphtheria. That is the dilemma my learned friend is in.

Mr. Justice Lush. I do not want to go into it at this stage. I cannot help saying on that that the mere fact that the Doctor holds a strong view does not in my opinion shut out the possibility of a Jury saying he was guilty of gross neglect. I am not saying it is so at all in Dr. Hadwen's case; I am only saying it generally, that a man may allow his mind to be in such a condition of prejudice that he may not in the opinion of the Jury be acting bona fide though he thought he was.

Sir Edward Marshall Hall. Is not that a case for a mental expert ?

Mr. Justice Lush. I do not know what you mean.

Sir Edward Marshall Hall. If a man has allowed his mind to get into such a state that because he holds an opinion so strongly that it is not reasonable, would he be responsible in law for the crime of manslaughter ?

Mr. Justice Lush. You do not say he is insane.

Sir Edward Marshall Hall. I am not suggesting that defence for a moment; it is only academic.

Mr. Justice Lush. We will not pursue it further, I must direct the Jury about it when the time comes. Please do not think I in the least degree suggested that you were too long, Mr. Vachell, I assure you that that was not in my mind.

Mr. Vachell. If your Lordship pleases. (To the Witness.) In addition to what we have been told of the post-mortem appearances, the swab proved to have bacillus on it. That does not affect your views at all ?—Not at all.

What do you say to the other children suffering from diphtheria ? You have heard Dr. Berry, from the Isolation Hospital, and we will take the case of one of them, if you like, Gladys.—Gladys was running about the streets when the child was taken to the hospital.

She was taken to the hospital and found to be suffering from diphtheria; what do you say to that ?—I cannot say. I understood from Dr. Berry that she had a sore nose.

Hilda, another sister, was living in the house and she was taken to the hospital and found to be suffering from diphtheria; what do you say to that ?—I expect it was the same kind of throat as the other.

In other words it was not diphtheria; is that it ? —I know nothing about it.

Assume that Dr. Berry was right and that they were so suffering, does that to your mind point to the probability of Nellie suffering from diphtheria as well ?—I do not think that is a fair question to ask me; unless I saw the patient I cannot form any judgment with regard to it.

I think it is a question you might answer. If you find a little girl very ill, who afterwards dies and the doctor finds the diphtheria bacillus in a swab taken in lifetime, that it was in her throat, and they find these post-mortem appearances and the doctors tell us she had diphtheria. Then you find from the same household about the same time two of the residents, two sisters of hers, are taken to the hospital and they are suffering from diphtheria, does that in your opinion make it more probable that Nellie's real disease was diphtheria too ?—Certainly not. Nellie had no symptoms of diphtheria whatever; neither had the boy whom I cured and Gladys I cured likewise.

I just want to remind you of what Dr. Ellis says he saw on the Saturday night, the 9th. He said he could see at that time membrane in the throat ? —Yes.

Do you accept that ?—No, I consider he was mistaken. What I expect he really saw was dried mucus and clotted milk which has been mistaken over and over again for diphtheritic membrane.

He also, I think, spoke of certain symptoms, did not he, the smell and the discharge ?—He said there was a discharge from the nose. All I have to say is there was none in the morning.

I am reminded that Dr. Ellis said he took a swab from the membrane ?—Not from the membrane; he took a swab from the throat.

If the membrane was there, that would be from the membrane, would it not ?—There was no membrane there; there could not have been.

If you have a case of diphtheria, do you tell the patient that there is a remedy that is generally in the profession looked upon as a good one, antitoxin, and give the patient the opportunity of having it administered ?—Certainly not. When a patient comes to me, a patient leaves himself in my hands and I treat him as I consider to be right.

And you would not take that step of giving him the opportunity of having the usual treatment prescribed ? —There is no necessity for it; I can cure diphtheria without.

Re-examined by Sir Edward Marshall Hall.

Does diphtheria always show itself first in the throat ? Can it originate in any other portion of the body ?—You can get membrane, what is called a diphtheritic membrane, in ulcers of all kinds everywhere.

Do you know of any case where it develops in the lung or in the bronchial tubes, for instance ?—I do not think so, I have never heard of anything of the kind.

You referred my friend, in vindication of your theory with regard to the want of value of the bacillus, to Osler's book which was referred to by my learned friend, and indeed by Sir William yesterday. Would you mind giving my Lord the exact passages out of this book which you were referring to ? Will you refer my Lord to the page, only on this one point of mistaken diagnosis of diphtheroids and diphtheria ? —It is at page 60. "Under the term diphtheroid may be grouped those membranous inflammations which are not associated with the Klebs-Loeffler bacillus. It is perhaps a more suitable designation than pseudo-diphtheria or secondary diphtheria. Streptococci and pneumococci are the organisms most often found. The name 'diphtheritis' is best used in an anatomical sense to designate an inflammation of a mucous membrane or integumentary surface characterised by necrosis and a fibrinous exudate, whereas the term 'diphtheria' should be limited to the disease caused by the Klebs-Loeffler bacillus. The proportion of cases of diphtheroid inflammation varies greatly in the different statistics." Then it gives a number of cases in which the diphtheroid affection occurs, scarlet fever, measles, whooping-cough, typhoid fever, and so on, right away on every kind of diphtheritic membrane which you cannot tell from diphtheria.

My friend has put to you a pamphlet which he suggests you wrote, from which he quoted, called "The Modern Medicine Man" and it is written by you. My friend has quoted a passage. Have you for a long time written a series of pamphlets against antitoxin and against all the serum treatment ? —I have.

1906 or 1909 somewhere about then was the latest, or have you written since then ?—I have written hundreds since then.

Anyhow in Gloucester have you published these pamphlets ?—Yes.

And my friend asked you what reason you had for being opposed to the administration of antitoxin and you answered him by saying that there was a well-known case of Prof. Langerhans and other cases, as to which you could not give the exact date. Do you know a book published by Dr. Bosanquet, a Fellow of the Royal College of Physicians, London, the Assistant Physician of the Charing Cross Hospital ? It is a book published by him on the serums, vaccines and toxins ?—Yes.

Mr. Justice Lush. What is the date of it ?

Sir Edward Marshall Hall. The 1909 edition. (To the Witness.) Is that a book you have frequently consulted ?—Yes, it is the standard work in the medical profession.

Sir Edward Marshall Hall. In view of the cross-examination I ask your Lordship that the Doctor may be allowed to cite the passage from that book.

The Witness. "It cannot be denied that in a certain number of instances the injection of diphtherial antitoxin has been followed by death, directly attributable to the action of the serum. A melancholy instance was afforded by the sudden death of Professor Langerhans' infant son soon after a prophylatic dose of the serum, but this has been attributed to the existence in the child of the status lymphaticus, which predisposes to death from trivial causes."

Mr. Justice Lush. This has been attributed to what?

Sir Edward Marshall Hall. To status lymphaticus. I will summarise it. If necessary, the passage can be found. I will not trouble you to read it in extenso. In that book are there recorded a number of deaths directly attributable to the injection of antitoxin?—Yes.

Mr. Vachell. I think it is a pity, when Sir William Willcox was in the box, that his attention was not drawn to it.

Mr. Justice Lush. I know. It is important.

Sir Edward Marshall Hall. My learned friend raised this point, I did not. I could not deal with it until my friend raised it; I was entirely unaware of it.

Mr. Justice Lush. It is enough for you to say, is not it, that in a well-recognised authority that statement is made by a person of some position. It may not be a correct view of the question upon an indictment for manslaughter. If the view is one that is entertained by reasonable people, whether it is right or wrong does not matter.

Mr. Vachell. It surely becomes important then that this should be dealt with a little more closely than that Dr. Hadwen should say, in a general way: "There are a number of fatal cases."

Mr. Justice Lush. Yes, we ought to know something more.

Mr. Vachell. Yes. The first one my friend read out from something referred to the fact that the child probably had status lymphaticus at the time.

Sir Edward Marshall Hall. I see that Sir William Willcox is still available, if any question arises on it.—May I be allowed to read from this standard work of Bosanquet and Eyre? It says: "It cannot be denied that in a certain number of instances the injection of diphtherial antitoxin has been followed by death, directly attributable to the action of the serum. A melancholy instance was afforded by the sudden death of Professor Langerhans' infant son soon after a prophylactic dose of the serum, but this has been attributed to the existence in the child of the status lymphaticus, which predisposes to death from trivial causes. A similar case of sudden death is recorded by Boone, in a boy aged 10 years, who after an injection of 4,000 units of antitoxin suddenly sat up, clutched at his throat, became deeply cyanosed, and died. No cause of death was discovered at the necropsy. Mackeen reports a fatality in a girl aged 17, the subject of asthma and status lymphaticus: in this case the antitoxin was administered as a prophylactic. Most of the fatal cases recorded have been of the same sudden character."

Mr. Justice Lush. I see one of the joint authors of that book is the bacteriologist at Guy's Hospital.—Yes.

Mr. Justice Lush. And bacteriologist to St. Mary's Children's Hospital.

Sir Edward Marshall Hall. And he is in charge of the vaccine department of Guy's. I hope your Lordship will realise that we are not advocating our personal views; we are dealing with Dr. Hadwen in this case.

Mr. Vachell. Did your Lordship follow that all that is from Bosanquet?

Sir Edward Marshall Hall. Yes.

Mr. Justice Lush. And Eyre.

Sir Edward Marshall Hall. Is that a recognised standard work?—It is.

In face of that, is it safe to say, as my learned friend suggested to you, that practically the whole of the medical profession are in favour of antitoxin treatment?—Quite true.

In spite of that, you venture to differ?—I do.

That is a matter you are responsible for, not me. With regard to those statistics, is there any difference between the total number of deaths and the case mortality from diphtheria; do you distinguish between the two?—Yes, most materially.

Will you try and explain to my Lord what it is in those statistics upon which you rely as supporting your theory of hostility to antitoxin treatment?—This is the Metropolitan Asylums Board Report, the last one published, and they base their statistics upon case mortality, that is the number of cases of notified diphtheria, and the number of deaths to the cases. What is noticeable here is this: The antitoxin treatment was introduced in the year 1895. With the introduction of the antitoxin treatment came an entirely new method of diagnosis. Instead of the diphtheria being diagnosed in the old-fashioned, and as I consider, scientific way of physical signs and symptoms, it became the fashion to diagnose it by a germ. The result was that a great many common sore-throats that would have got well under any circumstances were found, as Professor Osler and other writers admit, to have associated with them the diphtheria bacillus, and consequently they were called diphtheria. You can see that if you have an increased number of cases of common sore-throat thrown into the count the death-rate will decrease. It is a remarkable fact that with this new method of diagnosis the number of cases increased materially. You have it here that in 1895 there were only 3000 cases of diphtheria. In 1896 they had increased to 4000; in the next year the number of cases increased to 5000; in the next year they had increased to 6000; in the next year they had increased to 8000; and the more of these harmless bacteriological diphtheria cases that were thrown into the count the less was the death-rate. May I put it in this way? Supposing you had, say, 100 cases of diphtheria, and there were 21 deaths, that means a death-rate of 21 per cent. You add to that 100 cases 200 harmless cases of sore-throat with a germ with them which would not die at all, and then you have 300 cases, but the same number of deaths, and you have reduced your 21 per cent. down to 7 per cent. That is the statistical trick by which all these statistics are worked. And that applies to the very book which in this, and last year's edition, has admitted that there were over 2000 last year, and approximately 2000 this year, mistaken diagnoses of diphtheria which have been sent to fever hospitals in London alone.

Mr. Justice Lush. Then is it your view that a number of cases in which doctors say that the antitoxin treatment has been successful are really cases which are not diphtheritic at all?—That is so; it is a case of *post hoc ergo propter hoc.*

Sir Edward Marshall Hall. Has the existence of this Klebs-Loeffler bacillus, in cases which are not diphtheria, given rise to a certain name called Loeffleria, which is a book of 1923, a disease in which the bacillus is present without the ordinary symptoms?—Yes, and here I have a work by one of the chief medical men of the fever hospitals in London, in which he says that the cases of paralysis have increased materially since this has occurred: "The introduction of antitoxin treatment has had a marked effect upon the incidence of paralysis. On the whole, this has been increased probably because a large number of severe cases are tided over the acute stage of the attack, indeed this increased incidence has taken place in those brought under the treatment."

Mr. Justice Lush. If you look at Dr. Bosanquet's and Dr. Eyre's book I think you will find that statement explained and dealt with. He deals with that apparent increase of paralysis, and says, I think, there was nothing in it.

Sir Edward Marshall Hall. I purposely did not attach any importance to it, but the Doctor did.

Mr. Justice Lush. This is the passage, it is only fair to read it: "There is reason to believe that since the introduction of antitoxin the percentage of cases which suffer from paralysis after diphtheria has definitely increased. This effect was at first attributed to the remedy, and some prejudice against the use of it was thereby excited. Since, however, as we have just endeavoured to prove, it saves the lives of many patients who would otherwise have died "—that is rather praising the antitoxin.

Sir EDWARD MARSHALL HALL. It does.

Mr. JUSTICE LUSH. "And these severe cases are those which are most likely to exhibit paralysis later on, there inevitably arises an increase in the percentage of cases of paralysis: it is in reality a testimony to the value of the antitoxin, and not a drawback to its use."

Sir EDWARD MARSHALL HALL. What that means is that even if you give the patient paralysis it does not matter, because you have saved the life.

Mr. JUSTICE LUSH. It says the advantage is very great.

Sir EDWARD MARSHALL HALL. I am not suggesting that that book is against antitoxin, it is only recording some of the things that have happened.

Mr. JUSTICE LUSH. The book that Dr. Hadwen relies upon, under your re-examination, is rather condemnatory of his view.

Sir EDWARD MARSHALL HALL. (To the Witness.) Is the book an antitoxin book or not ?—No, this book is written by men who thoroughly believe in antitoxin, and yet they have to admit its failures, and the paralysis, and the rheumatism which it causes.

Sir EDWARD MARSHALL HALL. My friend asked you an important question about the presence of this exudation. You say there was no evidence of any exudation at all, and you gave your evidence of what you saw. Is Dr. Eyre a very well recognised authority ?—A standard writer.

I see on page 155 he says this, "Again in tonsillitis the exuda is seen on the tonsils only, whereas in diphtheria it is spread over the half arches of the uvula," and that is the distinction you draw in this case ?—That is the distinction.

If you have diagnosed this as diphtheria, you would, of course, have notified it and you yourself would have agreed to the child being removed. It was all to your advantage that the child should be removed because you were not paid by the visit, and you were paid the same whether the child was removed or not, so there was no reason why you should object to the removal ?—No.

You have heard my learned friend's cross-examination and the views which you have told my Lord you hold in answer to those questions. Are those honest views ?—Undoubtedly.

You do believe in them ?—I do.

And you rightly or wrongly think it would be against your conscience to use those methods which you do not approve of ?—Certainly.

Because, as you have told my Lord, rightly or wrongly, you believe they would do no good ?—That is so.

I will again repeat the question I asked you yesterday; did you ever diagnose diphtheria either in the case of Leonard or in the case of Nellie ?—I did not.

Was there any difference in the symptoms of Nellie and those of Leonard ?—None whatever.

Did you apply the same treatment in both cases ? I did.

Were they successful in the case of Leonard ?—Yes.

So far as Nellie is concerned, you told my learned friend you do not agree she died of diphtheria; you dispute it ?—Undoubtedly.

But what you do say is she died of pneumonia ?—Undoubtedly.

In your opinion was that a pneumonia consequent upon a chill which she contracted on that Thursday night ?—Yes.

Mr. JUSTICE LUSH. Especially with reference to the 1st August, a date which I may tell you I attach very great importance to, when you saw the child she was, of course, in bed ?—Yes.

Had she any temperature or do not you know ?—She had a temperature of 100°.

That was the time when you took the temperature ?—Yes.

And a pulse of a little above normal ?—Yes.

Had Leonard the same symptoms ?—Much about the same.

And was there any substantial difference between the throat of Nellie as you saw it then and the throat you had seen in Leonard's case ?—In Leonard's case the ulceration was very much worse.

Are you quite clear that on that date, 1st August, there was no discharge of a blood-stained yellow nature ?—I am absolutely positive.

When did you first hear it suggested that there was and that you ought to have seen it ?—The mother never mentioned a word of it to me at all. The first time I heard of it was at the inquiry, I forget now which inquiry, whether it was the first inquest or the adjourned inquest, but I never heard a word of it till then.

You did not go to the child again for three days ?—No.

You did go to Leonard every day ?—Yes.

Consecutive days ?—Because he was so much worse.

Leonard's case being so much worse, you did see him every day ?—Yes.

Nellie's throat not being so bad you did not think it necessary to go more times between that interval ?—I told the mother, "She will soon be all right; she has a cold and tonsillitis."

And the mother, who had seen Leonard come through his illness, never sent for you ?—No.

Had you any reason on the 1st August when you left that house to suppose that the child was in a serious condition with diphtheritic symptoms or any serious symptoms ?—None whatever, the child was very much better.

I am speaking of the 1st August.—None whatever.

Some diseases are more infectious than others, I suppose ?—Yes, that is so.

Or contagious ?—Of course, some are contagious and some are infectious.

Was Leonard's illness infectious or contagious ?—It would be contagious. I should not like to say that it was infectious.

It would not follow from its being infectious or contagious that it was anything more than what people call an ordinary sore-throat ?—No, it is the kind of thing that runs right through a house; we have had thousands of them in Gloucester lately. There was a regular epidemic of sore-throats and I have treated a vast number.

Does not that indicate a germ origin of the disease ?—No, I think it indicates a peculiar state of the atmosphere. These cases of tonsillitis are very common in Gloucester. We lie very low here and the atmosphere is very humid. The schools are very crowded, and diphtheria increased very materially after the passing of the Public Education Act when all the schools became crowded with children. The same thing applies in a small scale all the way round.

Mr. VACHELL. Your Lordship rather stopped my learned frind, Mr. Micklethwait, when he was examining the mother on the subject of Leonard's illness.

Mr. JUSTICE LUSH. I was not conscious of having stopped Mr. Micklethwait.

Mr. VACHELL. Yes, my Lord, there was an objection by my learned friend as to one of the symptoms in Leonard's case. Now surely it has become of some importance as to whether that symptom did exist ?

Mr. JUSTICE LUSH. If I did, it has become more important now. I did not at that time, of course, think we should have to go into Leonard's case at all. I think you ought to be entitled to recall the mother.

Mr. VACHELL. I wanted to put a question to Dr. Hadwen upon it, but we will have her evidence first.

Mr. JUSTICE LUSH. Certainly.

ANN MARIA BURNHAM, *recalled.*

Further examined by Mr. MICKLETHWAIT.

I want to ask you a question about Leonard, He was taken ill on the 19th July, I think ?—Yes. that was the date, I think.

Did anything happen after he had been ill two or three days? Do you remember anything happening?—I do not know what you mean.

At night do you remember anything happening?—No.

Do you remember him in bed on the night of the 24th?—Yes.

I do not want to suggest anything in any way. Did anything happen when he was in bed on the night of the 24th?—Would that be on a Thursday night?

Yes, I think it was?—It was on a Thursday night he brought something up out of his throat.

What was that something?—It looked almost like indiarubber to look at. I had been giving him some slices of lemon and sugar to suck.

What colour was it?—It was about the same colour as rubber.

Do you mean a greyish colour?—He brought it out of his throat because I had seen what was in the children's throats.

Had you seen anything like that in his throat before?—Yes, I saw it when the doctor came, in each child's throat, in the two children, both Leonard and Nellie's. It was there the first day the doctor came plain enough for him to see, right across their throats. Their throats were full.

And on the 24th Leonard brought this piece up?—Yes, on the Thursday night.

Further Cross-examined by SIR EDWARD MARSHALL HALL.

Do you remember seeing the child hawk up great lumps of mucus from the throat? Do you know what it is? Have you seen the great lumps of stuff people get up when they have a cough?—Yes. It was not like that.

You say it was something like rubber?—Yes, I did not look at it long; it smelt so badly.

Did you ever tell Dr. Hadwen that the child had coughed up a piece of rubber?—No, he only came once after that.

MR. JUSTICE LUSH. Did you ever tell him?—No, I did not; he saw the children's throats every time he came. He ought to know.

MR. VACHELL. Now I ought to put a question to Dr. Hadwen.

SIR EDWARD MARSHALL HALL. In this book, Bosanquet and Eyre, it says "It may also be found in a virulent condition in the throats of healthy persons."

DR. WALTER ROBERT HADWEN, *recalled.*

Further Cross-examined by MR. VACHELL.

You have heard what Mrs. Burnham has said, that Leonard had something visible across his throat inside; what do you say to that?—All I can say is I never saw it.

If you had heard that he had spat up something of the character that she has described, would that have altered your opinion as to what he was suffering from?—I should like to have seen it first.

Was it the sort of thing you might expect in a diphtheria case?—I do not know why I should. This is not a diphtheria case.

Is it the sort of thing you might expect; is it one of the incidents in diphtheria that the membrane becomes loose?—But the membrane never comes away in a large mass, as is described by the mother. Membrane always comes away from the throat in small pieces.

That is always so, is it?—Always so.

Dr. Washbourn found a piece I think he described—

SIR EDWARD MARSHALL HALL. This witness was recalled for one purpose only.

MR. VACHELL. If my friend would have a little patience. I have had some experience. My friend s so very jumpy. (To the Witness.) Dr. Washbourn ells us of a piece three inches by one; do you call hat a small piece?—No, I consider that a very large piece, and that leads me to conclude it came from below and not from above.

MR. JUSTICE LUSH. Unless the doctor sees it and knows what it is like, I do not see how he can be asked to say whether it would indicate diphtheria: that is the trouble.

MR. VACHELL. If your Lordship pleases, I quite accept that.

SIR EDWARD MARSHALL HALL. Is what is called croupous pneumonia diphtheritic necessarily?—Oh dear no.

Is croup diphtheritic?—No.

Therefore, when the Registrar-General has combined diphtheria and croup, does croup necessarily include diphtheria?—Oh dear no.

So, as regards these figures that my Lord has very properly pointed out to you, if you add the two columns together or deduct the second column, that is the sum of the first plus croup and if you take a subtraction of it and take one year 1895——

MR. VACHELL. Is this re-examination?

SIR EDWARD MARSHALL HALL. It is on the question of the presence of a membrane coming up.

MR. VACHELL. Let me ask your Lordship to look at the table itself; it is called membranous croup.

SIR EDWARD MARSHALL HALL. No, it is diphtheria and the other is diphtheria and croup.

MR. VACHELL. Membranous croup is the only croup notifiable.

SIR EDWARD MARSHALL HALL. Now my friend has added that. I do not see the words membranous croup. What has happened is that the doctor has obviously taken the one column and not the second column. If the second column which talks of diphtheria and croup means croup which is diphtheritic, then it is perfectly proper to take it as comparable as a figure of diphtheria, but if it means diphtheria and croup, that is croup which is not diphtheria, then it is not the proper column to take in comparison.

MR. JUSTICE LUSH. It is quite obvious when you examine those returns they do not justify, it seems to me, Dr. Hadwen's statement that the number of cases had increased instead of diminished.

SIR EDWARD MARSHALL HALL. Unless you take the one column of diphtheria only. If you do that, Dr. Hadwen is accurate, but if you take the next column, diphtheria and croup which Sir William told us contained the preceding column plus the croup cases, then I agree Dr. Hadwen is inaccurate.

MR. JUSTICE LUSH. That is the difficulty.

SIR EDWARD MARSHALL HALL. I will leave it at that. I do not call any other witnesses, and that is the case for the Defence.

CLOSING SPEECH FOR THE CROWN.

MR. VACHELL then addressed the jury. They would be asked, he said, when Mr. Justice Lush came to sum up, to consider whether there was in this case culpable neglect on the part of Dr. Hadwen, and if so, did that neglect either cause or accelerate the death of the child.

The first matter that one was bound to consider in dealing with the question was whether the child ever had diphtheria. As against all the evidence for the prosecution they had simply the evidence of Dr. Hadwen, the most interested person in the case. His whole anxiety naturally was to escape from the charge that was made against him, and although his (counsel's) learned friend (Sir Edward) had rattled about a number of books and read from Dr. Hadwen's pamphlets passages concerning his theories and effusions, not one single medical man had been called before them into the witness-box to support any of those views and theories that the doctor had lectured to them upon so eloquently from the witness-box. That perhaps would be more important when one came to consider the merits of antitoxin than when one was dealing with this first question as to what the child was suffering from. It might also be helpful on the question of pneumonia. But Dr. Hadwen stands alone, and says, in effect, "you must discredit all the witnesses for the prosecution, accept my theories on disease and upon germs of disease, put on one side the whole weight of the professional medical men of this and almost every other country; I don't believe them, I have no regard for them; accept your facts from me."

Going on to review the evidence, Mr. Vachell asked the Jury if they thought the mother of the child had any animosity against Dr. Hadwen and if there was any reason why she should come to Court and make up a story against him. You are the judge of her, he said. There is no doubt that now she feels very strongly and feels very bitterly against Dr. Hadwen. But she told most of this story, I think, at the inquest, which took place a few days after the child's death. All the witnesses had spoken of just those symptoms which attended most cases of diphtheria. There was, too, Dr. Ellis, who saw a piece of membrane in the throat of the child when he was called in on the night preceding death, and further, how could the Jury give the "go by" to Dr. Washbourn's evidence? How are you going to deal with all the evidence? Mr. Vachell asked. Are you going to say there is a sort of conspiracy between all these people to do an injury to Dr. Hadwen, and that these people are deliberately committing perjury in order to achieve their end?

Sir EDWARD MARSHALL HALL here interposed to say that he had never made any suggestion that the witnesses for the prosecution were committing perjury.

Mr. VACHELL. I have never said that you made the suggestion.

He would venture to suggest, Mr. Vachell continued, that it was impossible to put aside the evidence as evidence they could not act upon without coming to the conclusion that much of it had been invented. The witnesses all spoke of actual facts, saying, "We saw this, that and the other." And if that evidence was accepted, the symptoms of diphtheria were present and were observable in the child. Dr. Hadwen did not treat Leonard's case as diphtheria, but it was probable that it was diphtheria, and was the one which brought the disease into the family.

Dr. Hadwen preferred not to give antitoxin. The question of antitoxin was more than a belief with the doctor, it was a religion, and they could see that. From what the doctor had told them it was perfectly obvious that it was not only a matter of eliminating it from his own practice, but he regarded it as pernicious and, he (Mr. Vachell) thought, almost as wicked. Dr. Hadwen had said he would not give antitoxin, and would try to prevent others giving it to his patient, and it was worthy of consideration whether the true explanation of the doctor's conduct throughout was to be found in that and based upon that. Might it not be that the doctor was prepared to call and treat it as tonsillitis rather than notify the case, which would mean going to the isolation hospital? They would have to consider whether that was the cause of death or accelerated the death.

Mr. Vachell went on to refer to the difference between lobar and lobular pneumonia. Dr. Hadwen's theory was that the child got pneumonia in consequence of a chill caught by going downstairs, and was something for which Dr. Hadwen said he could not be held responsible. They had evidence to show that the pneumonia, whether it was lobar or lobular, was a direct consequence of the diphtheria. It was to the advantage of Dr. Hadwen that it was called in this case lobar, which was more likely to be caused by a chill, but both Sir William Willcox and Dr. Washbourn were clearly of opinion that the pneumonia was a sequela to the diphtheria, and secondary to it. There was no evidence which would support Dr. Hadwen's views on the matter. There was the cogent evidence of the post mortem of the track of the fell disease from the spot where probably the membrane was created right down to the lung, which became involved and eventually acutely congested. They had evidence that the child was unable to withstand the added ravages of the pneumonia because she had not been given the proper treatment for diphtheria.

The next thing, proceeded Mr. Vachell, they had to consider was how far Dr. Hadwen could be said to be criminally liable for what he did. Much depended on what he actually saw. The case for the prosecution was that antitoxin ought to have been administered on his first visit. If Dr. Hadwen, in the excess of his zeal for doctrines which are believed in by but few of his fellow practitioners, wilfully shut his eyes to the symptoms and persuaded himself to believe that this was not diphtheria but something he might call tonsillitis, and if he were prompted in that by the knowledge that if he called it diphtheria the child would receive antitoxin treatment, that was neglect on his part of so gross a character and so tinged with feeling, that he neglected to give care and assiduity to his patient and indulged in his own special whims and theories in medical matters, that it surely came within the range of criminal neglect. A doctor's first care must be his patient, not the airing and practice of his own peculiar views, and if there were a recognised method of dealing with a disease, and if the results as shown by statistics were greatly in favour of the use of that particular remedy, was a doctor to say, because he had acted on a general theory differing from that of all other medical men, that he was to allow a child to run a risk which would not exist if the child were given the antitoxin treatment by someone more orthodox than himself? Was it the sort of care that poor people were entitled to expect even if they paid only a small fee for the services of a doctor?

One thing, Mr. Vachell said in conclusion, which had done good to mankind and saved a large number of lives was the particular serum which Dr. Hadwen chose to despise. He had sufficient before him to make him suspicious of diphtheria, and he ought to have taken steps which all prudent doctors did. He should have taken a swab and sent it to Dr. Washbourn, and the antitoxin treatment should have been applied, when in all human probability, the child's life would have been saved. Instead, he went on his somewhat curious views upon the whole subject of antitoxins and the whole question of bacilli and germs—views which no one had come into the box to support. He chose rather to take things into his own hands and treat the case as one of tonsillitis. That was something so gross and so unfair to both the patient and the poor mother that the Jury should feel bound, for the protection of public welfare, to register a verdict that would show that they regarded it as so gross as to make it punishable as a crime. Dr. Hadwen's answer to the various points which had been put before them in evidence was of practically denying everything. He opposed his unsupported opinion against that of every medical man. Were the Jury going to support that sort of treatment for children of the poor? Such children were entitled to as much care and attention, and with as much skill, as the children of those who were better off. He had no doubt that Dr. Hadwen was sincere in his somewhat unusual beliefs, and the probability was that those beliefs made him deliberately close his eyes to the true condition of the child. If he had done his duty and exercised proper care, and had properly examined the throat and looked at the symptoms, taken a swab and administered the antitoxin treatment which he abhorred, the strong probability was that the child would never have died.

(*Adjournment for lunch.*)

Mr. VACHELL. My Lord, Sir William Willcox, who was called away, has left an analysis of those figures that were dealt with. I have shown them to my learned friend, and he does not object to your Lordship having them. (Same handed.)

Sir EDWARD MARSHALL HALL. The whole thing is really dependent upon whether membranous croup is the only thing included in those figures. I am only going to deal with it on the question of bona fides to show that Dr. Hadwen read it as the Registrar-General published it. It was the fresh information which enabled him to say what he did.

CLOSING SPEECH FOR THE DEFENCE.

Sir EDWARD MARSHALL HALL addressed the Jury. He said he realised the importance of this case, and he only hoped the Jury would also realise its importance, because it was not only this particular case they were dealing with—the effect of a verdict in a case of this kind must have very far-reaching consequences. Dr. Hadwen was charged with manslaughter, and the Jury had to find their verdict on the evidence. The law had to come entirely from his Lordship, but on the facts upon which the legal position would have to be founded they were the sole judges, and they would be asked to say whether Dr. Hadwen was guilty or not guilty.

The onus of proving him guilty rested entirely with the prosecution, and if the prosecution failed to satisfy the Jury beyond all reasonable doubt that he was guilty, he was entitled to be acquitted. What constituted an offence of manslaughter in this case? Had Dr. Hadwen been guilty of such wilful and culpable neglect that it accelerated or caused the death of the child Burnham? As to what was wilful or culpable neglect, his Lordship would give them guidance, but he (counsel) submitted that there was absolutely no evidence upon which they could reasonably be satisfied beyond all doubt that Dr. Hadwen had been guilty of any wilful or culpable negligence. The case for the prosecution was dependent almost entirely upon the evidence given by that most eminent medical man, Sir William Willcox, for whom he (counsel) had the greatest and most profound regard. But he was not in a position, however great his position might be, to come down and say there was an absolute rule of practice by all qualified men that on suspicion of diphtheria they must take a swab and must inject antitoxin. He (counsel) submitted with the greatest confidence that it would be a terrible day for this country, for the medical practitioners as much as for the people who were their patients, if any such broad proposition of law was laid down.

The Jury had to ask themselves, Sir Edward went on, whether Dr. Hadwen diagnosed the case as one of diphtheria, and if he did not, was it an honest diagnosis or did he wilfully, by reason of his prejudice against the well-known fashionable diphtheritic treatment, and deliberately shut his eyes to the symptoms which otherwise he ought to have seen. In his submission, although he was not saying it was irrelevant, it was only of collateral relevancy that it was a fact that the child was suffering from diphtheria, because if the Jury were satisfied that the child was suffering from diphtheria in such an aggravated form as to be mainly responsible for its death, then they might say it was incredible that a doctor with Dr. Hadwen's experience should have honestly mistaken those symptoms. That was really the test of the case. Although they had the word of four medical witnesses that the child died from diphtheria, it was not conclusive against Dr. Hadwen, and it was only so far as that evidence affected Dr. Hadwen that it was of importance to the case. Dr. Hadwen had 35 years' experience, and as the Divisional Court had said on a previous day, he was entitled to the benefit of any reputation he had earned among his fellow citizens in the great city where he practised, however much they disagreed with the extremity of his conclusions and ideas, and he was before them as an honest man who had earned and deserved his reputation. Dr. Hadwen said he did not diagnose diphtheria, and that it was not diphtheria so far as he knew; but, unfortunately, he could not say whether that was right or wrong by reason of the unfair way in which he had been treated in the case. Dr. Hadwen took up the position that he did not agree with Dr. Washbourn, because the pneumonia was lobar and was not the class of pneumonia which was consequential on diphtheria.

With regard to the membrane found at the post-mortem examination, Dr. Washbourn had agreed that it could not be properly distinguished unless it was microscopically examined. That was where the prosecution had been in a dilemma, and the Jury could not, as asked by the prosecution, rely upon the visual examination of membrane and rely upon visual examination to settle the question of the kind of diphtheria the child had. There was also the question of the possibility of affection of the heart, which Sir William Willcox had told them should have showed signs of fatty degeneration. Dr. Washbourn said that the heart appeared to be normal and healthy. If the Jury were satisfied that the girl had lobar pneumonia and that the heart was normal, they had two important factors which militated against the diphtheria theory. Upon that point alone there arose an element of doubt, and he asked them to say that the girl had lobar pneumonia consequent on a chill got by going downstairs at night. Dr. Hadwen's statement that the child was better on the Wednesday morning was borne out by the fact that the child was able to go downstairs. If, as the mother said, the child got rapidly worse of the diphtheria after the visit of the doctor on Wednesday, was it credible that she would be able to go downstairs in a condition of increasing diphtheria?

If, continued Sir Edward, they thought the evidence proved that the child did go downstairs in her bare feet to get some water, contracted a chill, and as a result of that chill contracted lobar pneumonia from which she died, Dr. Hadwen was not guilty under any consideration. Had the Jury any doubt about it? According to the mother's evidence, the next morning the child was seized with vomiting, and was much worse on the Saturday morning, when Dr. Hadwen was staggered by her appearance. Yet, according to the mother, Dr. Hadwen, within 14 hours of the child's death, said then there was nothing whatever the matter with the child, and that she would soon be quite well. Was not that so incredible that the Jury would refuse to believe it? If they did not believe it, what was the other evidence of the mother? There were two points which he (counsel) regarded as of vital importance in this case. One was the admitted fact that the child ran the risk of incurring a chill, and secondly it was an admitted fact that the pneumonia was the pneumonia one would expect to find following such a chill. The mother no doubt felt she had a grievance against Dr. Hadwen, for though Dr. Ellis told her he was prepared to give a certificate of death, she insisted upon the holding of an inquest to have all the facts investigated so far as they affected Dr. Hadwen. In her earlier evidence there was no specific mention of the now much-relied-upon nasal discharge, streaked with blood; and, what was more, though she knew the child had run downstairs and had incurred the risk of a chill, never once did she tell the doctor of these incidents; and neither did she tell the Coroner, until cross-examined by Mr. Clements for the defence. Did the Jury think it a fair thing to do—to hold back from the doctor facts which might be very important for consideration in connexion with the question as to what the child died of. There was, suggested Counsel, a suppression of something—an omission to state something by the mother which lent colour to the suggestion that she had to some extent coloured her evidence.

The next point was: Were the Jury going to believe Mrs. Taylor? She was a sister of Mrs. Burnham. They saw her in the witness-box, and he would ask the Jury to bear in mind her demeanour as a witness. When before the Coroner she said the child tried to vomit a quarter of an hour before her death, but did not bring anything up. Before the Magistrates she said the child tried to vomit, and a little came from her throat when she lifted her head, and when cross-examined she said she stated nothing at the inquest as to anything coming from the mouth of the child, because she only paid attention to it since the various doctors' evidence. Now, before the Jury, she had stated that she could see something in her mouth, and saw something slip from her mouth—a small piece of slimy, yellowish skin, streaked with blood. Did the Jury believe one word of that statement?

Was not that the final stage of colouring? If that was the nature of Mrs. Taylor's evidence, could they rely upon the evidence of the other witnesses who were called, and who were members of the family council? They had been in close contact with each other. He (counsel) would not say that they had invented the story, but they had persuaded themselves to believe that what they said really did happen.

The Jury might think, Sir Edward went on, that Dr. Hadwen was obstinate, that he was wrong, that his views on medicine and medical matters were somewhat eccentric, but he hoped they would not believe the suggestion that he was the only medical man in England who was opposed to the administration of antitoxin. In this case it was admitted that Dr. Hadwen had given the boy the best attention, and this was the weakness of the case for the prosecution. Here they had to explain away something. Dr. Hadwen said the boy never had diphtheria, but ulcerated tonsillitis. He treated him and cured him, and treated Nellie in the same way and would, he claimed, have cured her if she had not been exposed to the chill. The importance of the point was that a swab was taken from the boy's throat, and was returned as negative. Was Dr. Hadwen to be charged with manslaughter and convicted because he omitted to give the child on what was the third day of illness antitoxin, treatment of which he strongly disapproved? or charged and convicted of manslaughter because he did not take a swab and call in another doctor to administer the antitoxin? or because he was said to have failed wilfully and neglectfully to diagnose diphtheria, but treated the child for another disease? Sir Edward commented upon the fact that Dr. Hadwen had opposed having the trial elsewhere. He was entitled, he claimed, to be tried in Gloucester before a jury of his fellow-citizens, hence these proceedings at Gloucester.

Where was the negligence? Sir Edward asked, and asked with confidence. Where was the culpable negligence? Mistaken diagnosis possibly—probably if they liked. If they thought Dr. Hadwen was wrong and the child was suffering from diphtheria, that was a chance which everyone took when a doctor was called in. No doctor was infallible, and no doctor was liable for an honest mistake. No one could say that was manslaughter. He agreed that if the Jury thought Dr. Hadwen prejudiced his mind to such an extent as to shut his eyes deliberately to symptoms he ought to have seen were those of diphtheria because he did not want to notify it and expose the patient to the possibility of the use of serum inoculation, then it was another matter. If, however, they believed that the doctor was fortified in his diagnosis by what had happened in his treatment of a case of follicular tonsillitis with identical symptoms, there was an end of the case. They could not, if they believed the doctor, say it was a wilful and negligent diagnosis. If they thought that they could not return a verdict of guilty.

Sir Edward regretted that he must refer to Dr. Ellis's behaviour in the case. He was sorry Dr. Ellis had done what he did, and he was sorry to have to say what he was going to say. It was an unfortunate thing that the doctor called in in this case was the doctor who had been the most bitter opponent of Dr. Hadwen in the public press in the preceding year, and who was the man who had gone so far as to write to the editors of newspapers offering to give information detrimental to another doctor's professional position. He (Sir Edward) had a very high opinion of the medical profession, which was bound by a stringent etiquette, and he thought Dr. Ellis, when he thought the matter over in the quiet of his surgery, would regret, having regard to the bitter hostility between Dr. Hadwen and himself, that when he was asked to attend a case where Dr. Hadwen's conduct was to be called in question, he did not suggest some other doctor should be asked to attend. Dr. Ellis knew of the death of the child on the Sunday, and although he was on the telephone he did not inform Dr. Hadwen. While all that was bad, what was to follow was worse. It was true that under the present system the Coroner was absolute master of his own court. He could summon through his officer whatever jurors he liked and no one could say aye or no. He could order a post mortem, and whether the person who was most concerned with the result of the post mortem was consulted or not depended upon the Coroner, as did the fact whether he could be there represented. The City Coroner was away on his holiday, and the Deputy Coroner—a medical man—attended the post-mortem examination. Dr. Hadwen, who was a skilled, duly qualified man, although he was concerned in the result of the post mortem, was not present, although it was known that there might be a charge against him. In that case nothing had come out clearer than this. Had Dr. Hadwen been allowed to be present many of the questions left in doubt would have been definitely and finally cleared up. It was little less than a public scandal that the Coroner should not have given Dr. Hadwen an opportunity to be present at the post mortem, or his representative.

In conclusion, Sir Edward said the Jury must be satisfied that the child died of diphtheria, which was the result of negligent treatment by Dr. Hadwen before they could bring in a verdict of guilty. If they were not satisfied he was entitled to be acquitted. Confident that he could get a fair trial from his fellow-citizens of Gloucester, he (Sir Edward) left Dr. Hadwen in their hands. Whatever they might have heard outside, whatever prejudice might have been imported into the case by the cross-examination of Dr. Hadwen, they would judge the case on the evidence given within those four walls according to their oath, "A true verdict give, upon the evidence." If they did that he, like Dr. Hadwen, had absolute confidence that they would do justice to the doctor and the prosecution. They had to hold the scales of justice between the two, remembering that the prosecution must put so much into the scales that it must outweigh beyond all possibility of error the scale in which the defendant's innocence rested.

THE JUDGE'S SUMMING-UP.

Mr. Justice Lush. Members of the Jury, we have now reached the last stage of this very serious and somewhat unusual case. You have listened to two very powerful speeches, and it is now my duty to sum up the evidence to you, after which it will be your duty to say what your verdict is.

There is one word I wish to say now at the outset, although I hope and think it is scarcely necessary for me to say it. This case, as we all know, has excited a very unusual degree of public interest, I might say excitement, and it may be before you went into that jury-box you heard the case discussed. You heard opinions expressed with regard to Dr. Hadwen and his conduct with reference to the child. I am quite sure that you in considering your verdict will not allow anything you have heard outside this Court to weigh in the least with you, or to have the slightest effect upon your judgment. In a Court of Justice we have to consider one thing only, and that is what is the true conclusion to come to having regard to the evidence that has been placed before us, and you will, I know, apply that method, and that method only when you come to ask yourselves, ought we to find a verdict of guilty or a verdict of not guilty. You have heard the evidence, and by that evidence you will come to your conclusion.

The case is undoubtedly, as I have said, a very serious one. It has consequences that extend beyond those who are personally concerned in this case. A charge of manslaughter is brought against a medical man who has for some 30 years been following his profession and practising in this city of Gloucester, and, of course, to him it is a matter of the utmost importance. It is a matter of great importance to the public, to the community, and, I may say, to the medical profession, because while on the one hand children and others are entitled to be, and must be, protected against criminal neglect, criminal misconduct on the part of a medical man, it would be deplorable and disastrous if a medical man following his profession according to the best of his judgment, and acting honestly in the treatment of a patient, were to think that he had hanging over his head a weapon like this, and a fear like this if anything should go wrong with his patients. It is a case which of course requires strong and clear proof on the part of the Crown, and it is only if you are convinced by the evidence that has been called by the Prosecution that Dr. Hadwen was guilty of criminal wicked neglect, and if you are also convinced that it was that criminal and wicked neglect that caused the death of that little girl, that you can find a verdict against him, and if the Crown, upon whom of course the burden rests, have failed to bring home this criminal misconduct to him, he is entitled to a verdict of acquittal.

Now it is of the utmost importance that you should realise and always bear in mind this fact. You are not sitting as a jury merely to criticise Dr. Hadwen's views. You are not here to say merely whether he has or has not adopted views which, in your opinion, a wise medical man ought not to adopt. The charge against him is that he caused the death of this little girl. The indictment in its form says that he did feloniously kill the child, and it is a vital part of the case that the Crown has to establish not only that he neglected her—I will say a word about that in a moment—but that his neglect did actually cause her death. I want to say a word first about the last of those propositions—namely, that his neglect caused her death. Many cases have been tried in these Courts in which a medical man, sometimes an unqualified man, has undertaken the cure of a patient, and has in the course of the endeavour to cure the patient chosen to administer a dangerous drug or perform some operation in the hope that it would do good to the patient. If the drug was administered, or the operation performed, in such a disgraceful, careless fashion, or performed with such a disgraceful ignorance as to what the effect of the drug would be, or as to the way in which the operation ought to be performed, and the patient died then there is no difficulty in saying in such a case that the doctor or the operator caused the death of the patient because what he did naturally would have destroyed life. But the peculiarity of this case is this. Nobody suggests that Dr. Hadwen did anything, administered a drug, or performed an operation, or did anything else which caused the death of Nellie Burnham. What is said is that he was so neglectful in his diagnosis and in his treatment that the child, whose life would have been saved if proper care had been used, died through that neglect, and the Crown therefore have to prove this, not only that there was the neglect but that she would have had her life saved or prolonged, because to cause death is the same as to accelerate death for this purpose. It must be proved that her life would have been prolonged before you can say that proper care had not been used. One is met, of course with this difficulty. Who can tell what would have happened to the patient, assuming there was neglect on Dr. Hadwen's part, if proper care had been used? Of course one cannot say for certain what would have happened. The disease might have run its course favourable to her. It might, on the other hand, even with care, have ended as this did, but the way in which you must deal with this question is this. If a doctor is culpably negligent in his treatment of a patient, and if the patient dies, it is not enough for the Crown in supporting an indictment of manslaughter to prove that if the doctor had been careful the patient would have had a chance of getting favourably and successfully through her illness. They must prove more than that. They must prove that in all human probability if care had been used the child would have recovered, and if the Crown have established to your reasonable satisfaction, first, that the doctor did neglect the child, and secondly, that in all human probability the child would have recovered if he had not neglected her, then, and then only, can the Crown ask for a verdict of guilty. I will tell you why I have dwelt so strongly upon that, and why I must urge you to bear it most carefully in mind.

There are two quite distinct questions that you have to deal with in this case. The first is whether there was that culpable neglect on Dr. Hadwen's part, and the second is that which I have just referred to, if there was the death was the death caused by it, and there are certain matters which you have got most carefully to consider even if you think that the neglect has been proved by the prosecution, and I will tell you what they are. I have mentioned before that that date of August 1st is an important one, and it is also obvious that the question of the pneumonia, how it came about, and how far it played a part in the death of this unfortunate child, are the two questions which I am going to say a word about, and which have an important bearing upon the death of the little girl. The doctor was called to see the child on August 1st. The doctor had been attending Leonard. Leonard, he told us, suffered from a worse throat than he found the little girl suffering from when he went there on the 1st August. Knowing that Leonard's throat was very bad he had attended Leonard consecutively for some three or four days. We know when the doctor called in to see Nellie he only attended her on the 1st August, and did not come again till the 4th. One must try and get at the answer to this question, which to my mind is an all-important one in this case. Whatever may have been the child's condition on the later days in August, up to the 9th when she died, what was her condition upon August 1st? Did she then show such signs of diphtheria or such symptoms as would make an ordinary doctor suspect diphtheria and take precautions against it, or did she only show signs of what one may call an ordinary sore throat such as Leonard had had and from which Leonard had just recovered. If the latter is the true view, if you come to the conclusion that on August 1st there was nothing to suggest to Dr. Hadwen that the child was suffering from a serious throat, a throat which would require serious care and steps to be taken, it seems to me then that there is this difficulty in the way of the Prosecution, and I want you to bear this in mind. The doctor went again on August 4th. August 4th, you know, was six days after the commencement of the child's illness, because the child was taken ill on July 30th. August 4th is six days after that. We know from Sir William Willcox, indeed we know from all the doctors, that unless this antitoxin is given within six days it is practically ineffective. It is practically useless to give it, and if the truth is that Dr. Hadwen had no reason until August 4th to suspect that there was anything seriously wrong with the child's throat, it seems to follow—it is for you, not for me to judge—that even if he did after August 4th neglect the child that did not really affect the child's recovery. It certainly would not make the withholding of the antitoxin a matter of any serious importance, because unless antitoxin had been given within six days the doctors have told us it is practically useless to give it at all, and therefore I do myself attach, and I ask you to attach, the greatest importance to this question: What was the condition of the patient when Dr. Hadwen was first called in to see her on that day in August. If she showed signs of diphtheria, if he then and there ought to have said to himself: "Well, this is a serious case, I must give it close attention," then you will have to ask yourselves whether he did give it the attention that the case deserved, having regard to the symptoms. Then it will become important for you to consider whether he ought or ought not to have taken a swab, sent it to the bacteriologist, and administered antitoxin, which you are told is the course that ordinary careful doctors follow. But if, on the other hand, on August 1st this little girl was only showing the same symptoms that Leonard had shown, if there was nothing serious in the throat, nothing to call the doctor's attention to the fact that there might be diphtheria, there might be some serious malady in the throat which no one would think of criticising him for not taking a swab, and for not administering antitoxin. Therefore you have to bear in mind, to my mind, the importance of that date, and ask yourselves whether the Crown has proved to your reasonable satisfaction that on that 1st August the child did show signs of a serious malady which the doctor with gross neglect refused to consider. So much for that part of the case.

The other factor which bears upon the question whether the death was caused by this alleged neglect is this question you have heard so much about, of the pneumonia. If the pneumonia was really the sequela, the secondary consequence of the diphtheria, then if the doctor is responsible for the diphtheritic condition continuing, of course he would be equally responsible for the pneumonic condition, because that would follow as a consequence of the diphtheria. But if, on the other hand, the pneumonia was brought about by an entirely independent act, the unfortunate act on the part of the child of getting out of bed, going downstairs, walking with bare feet upon the tiled kitchen, and then going back to her bed, if in fact it was that which caused the chill, and the chill caused the pneumonia, and the pneumonia caused the death, then one cannot say, it seems to me, that the neglect on the part of the doctor in the earlier days in August had anything to do with causing the death of the child. Therefore you have to consider this question with reference to pneumonia from that point of view. Did the child die of pneumonia? If she did, was the pneumonia the consequence of the diphtheria which the doctor, as the Prosecution say, ought to have discovered and treated in the earlier days in August, or was it the consequence of something the child unfortunately did for which nobody can suggest that Dr. Hadwen is responsible. Those are the two things, to my mind the important factors for you to take into account when you come to consider the second of the two questions you have to deal with, namely, did the neglect in fact cause the death? If it did not, all I can say is that there is an end of this case, because unless the Prosecution can prove that the neglect by the doctor did cause her death, they cannot ask you to find a verdict of guilty against Dr. Hadwen.

Now I will come back to say a few words about this question of neglect. The law does not say that if a person who is attending a patient, a doctor attending a patient, is unfortunate enough to have an error of judgment, or even unfortunate to commit an error of judgment because he does not take all proper care and the patient dies, that he is guilty of manslaughter. The law does not cast upon anybody who is merely careless, and whose carelessness is the cause of the death of another, the responsibility of defending himself in the dock against an indictment for manslaughter. There are many cases in which a person is guilty of negligence, and that negligence causes the death of another person, where that man who causes the death of the other through his negligence may have to pay damages for his negligence, but certainly he could not be indicted for manslaughter. Unless the negligence of which the person is guilty who does cause the death of another is of so gross a character as to make one say of it, "Well, that is wicked negligence, it is not mere carelessness, it was a wickedly careless thing to do," a man who causes another's death cannot be convicted of manslaughter. There must be something evil in the negligence, something culpable, something criminal in it, before an indictment for manslaughter can be sustained. Therefore the question you have to ask yourselves upon this question of negligence is not whether Dr. Hadwen failed to exercise that care which a doctor or anybody else ought to exercise, but whether he was guilty of what I have called, and call again, culpable and wicked negligence. If he was, then the Crown have proved the first of the two things they have to prove. If he was not, then the Crown has failed even to prove the first step, and of course that will be a verdict of not guilty.

Now let us consider how the evidence stands with regard to this question of neglect. There is no doubt about this, that a doctor who undertakes the charge of a patient, whether he does it for a reward or gratuitously—it does not in the least matter—is bound to give to that patient all the care which any ordinary doctor in ordinary circumstances would give to a patient. He is bound to do that. If he fails to do it, then, as I say, one has to ask oneself was that merely an error of judgment, carelessness which he ought not to have been guilty of, or is it something worse where the circumstances are such in which one would characterise that negligence as culpable and wicked negligence. What is said on behalf of the Prosecution with regard to Dr. Hadwen's conduct towards the child is this: "You have some five or six witnesses apart from the medical witnesses, who speak to the condition of the child, and the way in which Dr. Hadwen behaved when he was called in. First of all there is the mother, and I want now to remind you that when you come to deal with August 1st, which as I have told you already is, as it seems to me, such a critical date, you have only got on the one hand the evidence of the mother, and on the other hand the evidence of the doctor. There are no witnesses to corroborate the mother with regard to the condition of the child on August 1st, because the neighbours and the relatives who saw the child did not see the child until August 4th and later. Therefore with regard to August 1st, this critical date, you have nobody but those two witnesses, the mother on the one side and the doctor on the other. The mother says that the condition of the child was obviously very serious. The mother speaks of the thick utterance when the child tried to speak; she says there was this discharge, blood, tinged, coming from the nose; she speaks of the offensive smell, and she says that when the doctor came in and saw all those serious symptoms he did nothing but put his two fingers, I thought she said, into the child's mouth, looked at the throat, and after stopping there two or three minutes prescribed some medicine and ordered a gargle of vinegar and water. She said the doctor never took the child's pulse, and never took the child's temperature. If that is true, of course that is a serious matter for your consideration, because you may well think if that is true, and if you come to the conclusion—I will say a word about this in a moment—that the child was really suffering from diphtheria, that that was something worse than merely carelessness not even to take the child's pulse or temperature; to do nothing except order a gargle of vinegar and water when, according to the evidence of the doctor, if those symptoms did show themselves there was reason at least to suspect diphtheria. You may think that that indicated something worse than mere error of judgment, or mere carelessness. But Dr. Hadwen says that the mother's evidence is entirely untrustworthy. He says so far from this being true, that he never took her pulse and never took her temperature, he did and he gives you the results. He says there was no discharge; there was no smell, and he says this little girl showed no symptoms other than those which he had observed in the brother Leonard whom a few days before he had succeeded in curing. That is how the evidence stands upon this date of August 1st. It has been pointed out to you by Sir Edward Marshall Hall that the mother did not in all respects take quite the care, I mean behave quite in the way in which one would have expected her to behave, but one can make all allowances for her, and I am not saying anything against the mother's kindness to the child or desire to be fair to the doctor, but it is to be observed that in that very important matter of the visit of the child to the kitchen on the 7th the mother did not think it right, as one would have expected she would, to call the doctor's attention to it. You may come to the conclusion, it is entirely for you, that the mother in speaking of those symptoms on August 1st is giving an account of the matter which is exaggerated, and upon which you could not safely rely. You have the sworn evidence of Dr. Hadwen against it, and you have no corroboration of her story in the nature of things because nobody else saw the child. As I say, if you come to the conclusion that on August 1st the child was not exhibiting symptoms from which any ordinary doctor would infer a condition of diphtheria or any serious condition at all, it seems to me that you cannot say that on that date the doctor was guilty of culpable and wicked neglect, and if he was not I have pointed out already inasmuch as he did not come again till August 4th I cannot for myself see any ground whatever for saying that he was guilty of criminal negligence in not taking a swab or administering antitoxin. August 4th would be too late to do it with any expectation of getting any benefit from it, and unless it was his duty to do it on August 1st I cannot myself see that his omission to do it on the 1st August can be said to have caused the death of the child.

Now we come to the later dates, because you must take all the dates into account in order to see how the doctor behaved on those dates, and see whether the doctor did then seriously neglect his duty towards this little girl. On the 4th August the mother says the child was in the same condition. On the 6th she says she pointed out the discharge to the doctor, and he told her to paint the child's throat with glycerine, and she says he did not come again; she never sent for him although she knew on August 7th the child had been downstairs and that the vomiting began on the 8th. She never sent for him until the morning of August 9th. The mother says then that the child was very bad, and that the doctor when he came in found her in the condition that the mother described. Then the mother makes this very remarkable statement. She said that although the doctor saw the condition the child was in on that morning—and we know that within 14 hours the child had passed away—the doctor was so careless, so recklessly neglectful of the condition of the child, that he said: "The throat is clearing nicely, there is scarcely anything the matter, she will soon be all right, give her plenty of cold milk," and, says the mother, the doctor said that, although other people there, the other witness whom Sir Edward has commented on, I think Mrs. Taylor, has said the child's condition was such that anybody could see she was in a critical and dangerous state. Is that true? If you think Dr. Hadwen on that morning used language like that of a dying child, because that is almost what she was, you may come to a conclusion adverse to Dr. Hadwen upon this question, Did he act negligently and with reckless neglect towards the child? But Dr. Hadwen says that the mother has made a mistake of the most critical importance with reference to that conversation, and again, curiously enough, comes this difference of date. I ought to tell you that Mrs. Taylor does corroborate the mother, and she says she heard the doctor say, "She will soon be all right." Sir Edward Marshall Hall has called attention to the evidence of Mrs. Taylor and made comments on it, and I need not read it, but Dr. Hadwen says: It is an entire mistake to say he said or thought anything of the kind. He said it was on the 6th August that the child was better, not the 9th, and he said when he got there on the 6th the child was sitting up in bed smiling, and the doctor did think she was getting on nicely. If the mother and Mrs. Taylor heard the doctor say something like what they say they did but if they are wrong in putting that down as being said on the 9th, and in truth it was said on the 6th, it seems to me away goes again this case of neglect, wicked, culpable neglect on the part of the doctor. If you believe Dr. Hadwen, he was justified in saying on the 6th the child was getting on nicely, but Dr. Hadwen says: "On the 9th I was thunderstruck when I saw the change that had come over the child." So far from saying: "She has got on nicely, she will soon be well," he said he was thunderstruck with her, "I could not make out what had happened, the child was so bad." Then he felt the pulse—that the mother admits. She admits he felt the pulse of the child on the 9th. He took the child's temperature, and he said that he saw that the child was in a serious condition. That is how the evidence stands with regard to the matter, and you again have to ask yourselves who is right with regard to that date. The importance of that date is not that it was then time to administer the antitoxin, that time had gone by; it was much more than six days since the illness began when you get to August 9th, but the importance of it is this, how he behaved on that date throws the strongest light, it seems to me, upon his conduct throughout in treating this little girl. If he behaved in the way the mother says on the 9th August one can only say how could he have used language like that, or expressed an opinion like that, when the facts were staring him in the face, and the child died almost within twelve hours. But if what he says is the truth there is nothing in his conduct on the 9th that I can see that would justify your saying that he showed reckless and culpable neglect towards the child. So much for that; I need not trouble you about the other witnesses. Mrs. Peachey corroborated the mother with regard to the state of the child on the 4th. That you need not trouble about; at least I think you may agree with me that you need not be so concerned about it. It was after the expiration of the six days, and she said it was after the expiration of the six days. Mrs. Hotchkins, the aunt, speaks of the child's feverish condition on the 5th, and also on the 8th, and also speaks of the child trying to vomit on the 9th. Mr. Fudge, who I think sent the telephone message telling Dr. Hadwen in the evening not to come again, said he saw the child was very ill on the 7th. That, of course, was a date on which the doctor was not there, and the mother never sent for him on the 7th. He speaks of the child being very ill on the 9th at 9 o'clock in the evening. Then there was Mrs. Taylor, whose evidence I have dealt with already. Therefore you have now the evidence of the witnesses called for the prosecution with regard to all these dates. You have on the other side the evidence of Dr. Hadwen, who deals with these dates, and deals with the child's condition. I do not think it can be necessary for me to read that evidence over to you. You have heard it so recently, you have followed it with such care, but you know that Dr. Hadwen says—I repeat this in order that there may be no possibility of my overlooking anything to be said for him—"I consider that that little girl was not only no worse than Leonard but really less ill than Leonard. I had shown my desire to do my best for the patient so far as Leonard was concerned by going every day when it was necessary," and he says, "I should have done the same with Nellie and gone every day to her if I thought it was necessary," but he said, "I saw nothing in her condition on any of the three days on which I visited her in August to make me believe or even suspect with any real suspicion that she was suffering from any other malady than that which Leonard was suffering from, and that was not diphtheria but an ulcerated sore throat of which Leonard was cured." That is his answer to the case made by the Crown.

I do not think I need go into detail throughout, but you have to judge, and you have to ask whether the Crown upon whom, as I have said, the burden rests, have established to your reasonable satisfaction, that is to say, all reasonable doubt, that the child's symptoms were so grave on the 1st August that you would say that the doctor not only did not use proper care in his treatment of her but that he was guilty of wicked, culpable neglect in the way in which he did treat her.

Now we come to the medical evidence, and the medical evidence is important with regard to this question of neglect in this matter particularly. In one sense it does not matter, of course, whether the child died of diphtheria or whether the child never had diphtheria, but in another sense it is a matter of importance which you cannot ignore, and with which you must deal. If the child never had diphtheria then away goes the case for the prosecution, because the case for the prosecution is that she had diphtheria and that the doctor was guilty of wicked and culpable neglect in not discovering it and not treating it. Therefore one cannot ignore this question and say it is immaterial whether the child did suffer from diphtheria or not; and it is material in another way. The child undoubtedly had pneumonia. The doctors who have been called for the prosecution say pneumonia was the secondary consequence of diphtheria. If the child never had diphtheria the pneumonia cannot have been its secondary consequence, and if the child never had diphtheria the pneumonia must have been caused as far as one can see by the chill the child contracted when she went downstairs on the evening of August 7th. One cannot shut one's eyes, it seems to me, to the importance of the question, Had the child diphtheria? Do not misunderstand me. It does not follow if she had that Dr. Hadwen was criminally responsible. I have dealt with the question of his neglect even on the hypothesis that the child had diphtheria, but if she had not, as I say, the case against him disappears. Was she suffering from diphtheria? Now we come to this very singular aspect of the case. We have heard of Dr. Hadwen's views and mental attitude with regard to the generally accepted theory that diphtheria is a bacillus disease, as to the discovery of the bacillus, and the discovery of its treatment by means of antitoxin. We have heard his views with regard to the correctness of that theory. As I said before, you are not sitting here as a tribunal to criticise these views, to say whether you agree with them or whether you do not. Some people who have heard them may take a very strong view about them, and I think it is legitimate to say it would be very unfortunate if any one doctor were to shut his eyes to improvements in medical treatment which are accepted by the profession as a whole, and to say unless he has good ground for saying so, "I prefer to follow the old-fashioned treatment; I do not believe in these discoveries with reference to the scientific treatment of patients." After all the medical science is a great science. The medical profession is a very great profession, and unless a doctor is going to avail himself of the discoveries that are made from time to time by those who follow the medical profession, one is not likely to see that development of medical science and improvements in medical treatment which one hopes to see. It does not follow from that, of course, that a man who will stick to his own views is guilty of culpable and wicked neglect. A doctor is allowed by our law to practise his profession, if he is properly qualified, in the way in which he honestly thinks is the best, and if a doctor does hold peculiar views, and honestly holds them, and works them out and follows them because in his judgment they are the best methods to apply, or his views lead to the best methods to apply, one cannot say to my mind that he is guilty of any misconduct or any culpable and wicked neglect even though one may think he is terribly sadly mistaken. But I think one can conceive a state of things in which a man whether he is a doctor or anybody else —I do not say this of Dr. Hadwen, of course, it is not for me to pass a judgment upon him; I am not doing or intending to do anything of the kind, but I say it as a proposition which I think is sound—can get his mind into such a state of prejudice in which he can let his judgment be so blinded that really his position is this, that he would rather sacrifice his patient than his prejudices. I do not say that is true of Dr. Hadwen at all. I only say it is a possible state of things, and if a man, whether he be a doctor or anybody else, allows his mind to be so prejudiced, and his judgment to be so blinded, that he is unwilling to avail himself of discoveries and learn things that are being taught by the profession of which he is a member, I can understand a jury saying of such a man that he is guilty of wilful neglect, just as one knows a parent may be guilty of wilful neglect of a child if he refuses to call in a doctor however bad he may be. If he says: "I do not believe in doctors; I do not believe they do any good; I prefer to have faith in his recovery," there comes a stage at which a man must be judged by what he does. If a man is acting honestly, not allowing his mind to be blinded, but is bona fide following out that which he believes to be best, in my opinion he cannot be convicted as being a man guilty of culpable and wicked neglect. It is only when he gets into that state of prejudice I have mentioned that a jury would be warranted in saying, "You have wilfully neglected your patient."

Now we come to this question, Was the child suffering from diphtheria? You have a very powerful body of evidence on the part of the prosecution upon that question. A swab taken, a positive result, and the presence of the bacillus found, and the fact that the bacillus theory is adopted and acted upon by almost every doctor in the land; the evidence you have had with regard to the membrane that came away, and the evidence of the positive diphtheritic result found with regard to the two other children; a strong body of evidence on the part of the prosecution upon this question. You have heard the evidence, of course, of Dr. Hadwen on the point, who, as I say, does hold strong views about the uselessness of this bacillus theory, and you have to ask yourselves whether the child was or was not suffering from this malady. If you come to the conclusion, as I said before, that she was not, of course, the criticism against Dr. Hadwen then all falls to the ground. If you come to the conclusion that she was, it does not in the least dispose of the question, but it is then a factor which, of course, must be put into the scale, and to which proper weight must be given, but even then you are thrown back upon this question of neglect which I have dealt with already, and also you are thrown back upon the question to which I have referred already, namely, did the neglect, if it existed, cause the child's death?

I have said what I have to say about what happened on the 1st August. Let me say a word or two, and this is the last subject I think I need deal with with regard to the question of pneumonia. If, as I have said, the child died from pneumonia, and the pneumonia was caused by a chill brought on by what the child did, it seems to be impossible for you to say that the neglect on the part of Dr. Hadwen to diagnose diphtheria in any way caused the death of the child, and if you think that is the true view then apart from all the other questions you will acquit him upon this charge of manslaughter. What has been proved with regard to pneumonia being the cause of death, and with regard to the pneumonia being caused by the chill and not by the diphtheria? I do not propose to go through the evidence again; you have heard it very carefully sifted. You have heard the powerful comments made upon it by Counsel on both sides. We have got the fact that the mother did not tell Dr. Hadwen of it and give him an opportunity of treating it. He never knew till after the child's death that this had happened, that the child had gone down with bare feet in order to get the water when her mother's back was turned. But what was it caused by, and there curiously enough you have a very strong difference of opinion between Sir William Willcox, that very distinguished bacteriologist and physician, and Dr. Washbourn. Dr. Washbourn's views were, as I follow them, although I think it may be right to say it is not unnatural that in deference to Sir William Willcox's opinion he does not hold them quite as strongly as he did, that at all events in the early stages of this inquiry the lung was lobar not lobular; that that was the natural indication not of secondary pneumonia brought on by diphtheria, but of an independent pneumonia caused by chill. That was his opinion, and he considered that was lobar and not lobular. He agrees in one or two other matters with the views put to him by Sir Edward Marshall Hall as being one side instead of both. The period of three days that elapsed all points, as I follow Dr. Washbourn, to the conclusion that this pneumonia was really the result of the chill the child caught. Sir William Willcox takes another view. He holds the other view. He thinks strongly it was a secondary consequence of the diphtheria. He will not have the view that it was lobar; he thinks it was lobular, and he feels, apparently strongly, that it was a sequela of the diphtheria, and not the result of the chill. But, and you will bear this " but " in mind, it is for the Crown to prove their case beyond reasonable doubt, and if you think, looking at the views entertained by these two distinguished gentlemen, that the Crown have left it in reasonable doubt as to whether the child's death was caused by pneumonia brought on by chill, then I should warn you to be very careful before you convict this Defendant of manslaughter, which you can only do if the child's death was, in fact, caused by the diphtheria, because the neglect alleged against him is not, of course, in allowing the pneumonia to supervene ; the neglect alleged against him is neglect in not discovering that there was diphtheria, and taking the proper steps to get rid of it. Therefore, if the Crown have left this question as to the cause of the child's death in doubt, then can you say that the Crown have proved beyond doubt that Dr. Hadwen is responsible for the death ? I hope you follow what I mean ? The importance of this pneumonia question in this case, to my mind, is very, very great, because, as I say, even though you may, I do not say you will, even though you were to blame Dr. Hadwen for his views, you cannot bring in a verdict of guilty of manslaughter against him, however strongly you may criticise his views, unless, as I have said, you are convinced that that child's death was caused through his neglect.

That is how the case stands. I cannot help saying I agree with Sir Edward Marshall Hall that in a case like this, when there was this strong step contemplated, a step not often taken, I do not in the least say it was not right to take it, but a step not often taken—of putting a practising doctor in the dock upon a charge of manslaughter, that it was unfortunate he was not allowed an opportunity of being present when the post-mortem examination was held, in order that he might see for himself what steps he ought to have taken in order to investigate the cause of the child's death. Unfortunately, he was not told. The microscopic examination of the membrane might, for aught one knows, have assisted him. It was never taken, and he was not there to have an opportunity of taking it. It is an unfortunate incident, and, as I say, I do not ask you to attach too much importance to it, but I did not think it right to pass it over without expressing my agreement with what Sir Edward Marshall Hall said about it.

I do not propose to trouble you with any other observations, or read over any of the evidence unless you wish it. You have heard it all, and followed it so carefully, that I am quite sure it is not necessary for me to remind you of it. If there is anything you want to ask me, and you will do so, I shall be glad to give you any assistance, but I think you are familiar with the evidence, and I hope I have not failed to make clear to you what your duty is when you come to consider your verdict.

May I repeat the salient points, and then I have done ? The burden of proof is upon the Crown. The Crown must establish that Dr. Hadwen was guilty of culpable, wicked, neglect in his treatment of the patient. They must prove that if he had not been guilty of that neglect he would have discovered, in the ordinary course, that the child was suffering from diphtheria. They must prove that the condition of the child at the time was such—I mean that the stage was so early—that by the use of antitoxin the child's life would have been, at all events, prolonged, and they must prove that he was guilty of culpable neglect, or would have been if he had discovered the cause of the malady, in not administering the antitoxin ; that is to say, they must show, in other words, that the death of that child must be laid at his door, because it was he who had undertaken the charge of the child ; that he had the means at his disposal of saving that child's life, and that he wilfully, I mean by that not intentionally, of course, but that he wickedly, and with gross neglect, refused to avail himself of the means at his disposal, and refused to make himself acquainted with what the child was suffering from, and with the remedy he had at hand. If the Crown has proved all those things then, without regard to the consequences, you will say so, and find him guilty. But if the Crown have failed to prove either of them, if the Crown has failed to prove the neglect, or even if they have proved it, and they have failed to prove that that neglect caused the death, then Dr. Hadwen is entitled to a verdict of acquittal. I will ask you now to consider the evidence, and tell me whether you find Dr. Hadwen guilty, or not guilty.

VERDICT.

The Jury retired at 4.40, and returned into Court at 5 o'clock.

The CLERK OF ASSIZE. Members of the Jury, are you all agreed upon your verdict ?

The FOREMAN OF THE JURY. Yes.

The CLERK OF ASSIZE. How say you, do you find the Prisoner Guilty, or Not Guilty ?

The FOREMAN OF THE JURY. Not Guilty.

(Applause in Court.)

MR. JUSTICE LUSH. I tell you this, you who have made that demonstration in this Court, that conduct like that makes one feel inclined to take very great care, in a case of this kind, how far people are to be allowed into a Court of Justice without taking some steps to see that they behave properly. You have no right to make a demonstration of that sort in Court. (To the Prisoner.) You may be discharged.

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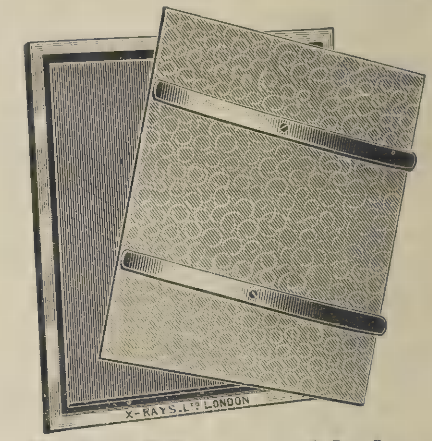

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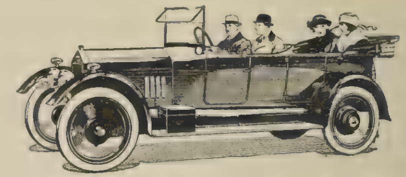

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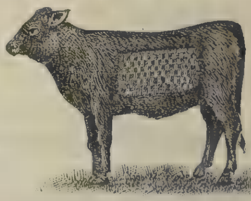

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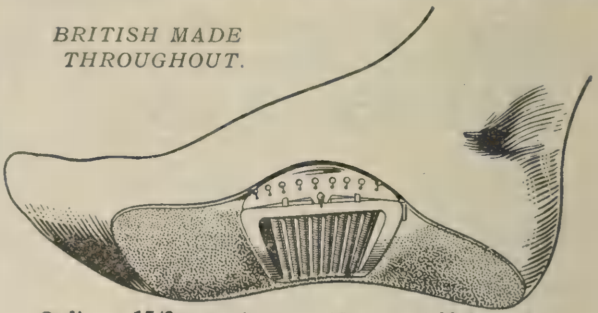

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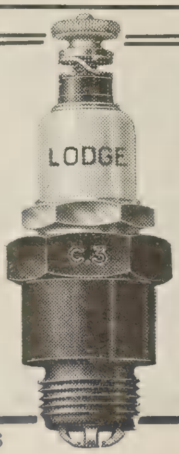

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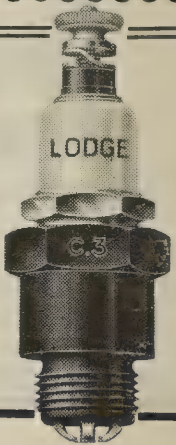

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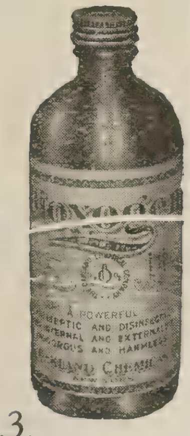
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M 163

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ANALYSIS

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	%	%	%
Lactose	6.5	4.7	6.25
Fat	3.3	3.5	3.45
Casein	0.9	3.0	0.80*
Lactalbumen	0.4	0.3	0.60
Salts	0.2	0.8	0.65
Water	88.7	87.7	88.25
	100.00	100.00	100.00

Freedom from Starch.—No Starch or products of starch conversion occur in Trufood. The only carbo-hydrate present is milk sugar. This is of importance since all authorities are agreed that starch, whether free or converted, is harmful in infant feeding.

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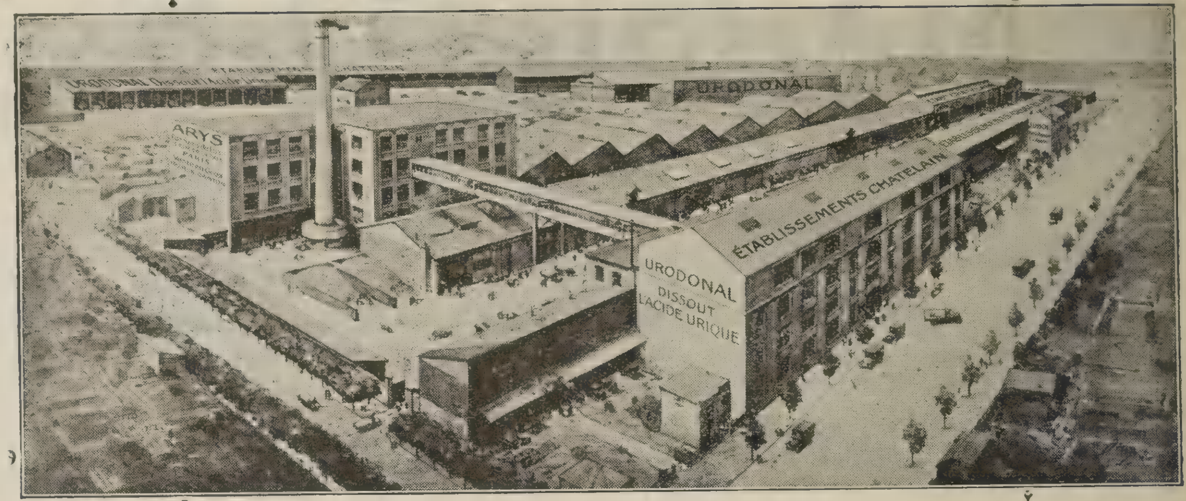

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'Bynin,' Liquid Malt	1oz.

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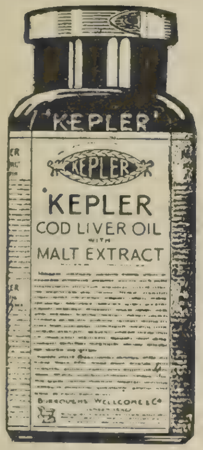

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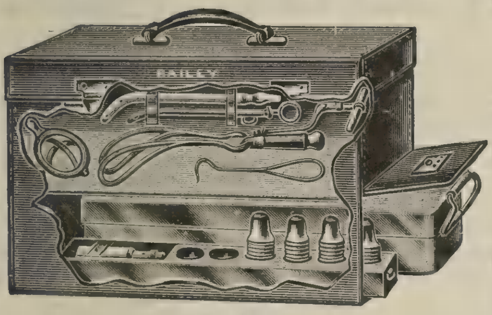

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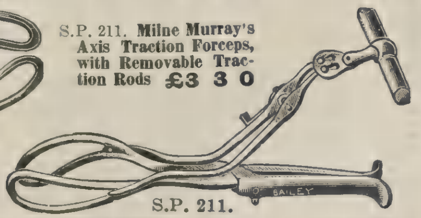

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Children's first teeth

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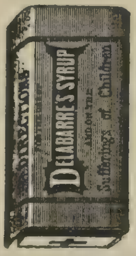

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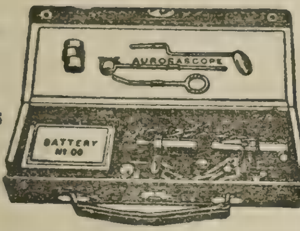

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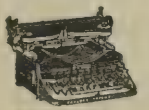

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Voluntary Boarders received without certificate. Seaside Branch at Worthing.

For particulars, apply to the RESIDENT PHYSICIAN.

THE ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES

(Formerly the EARLSWOOD ASYLUM.)

REDHILL SURREY.

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION and needing SPECIAL TRAINING in useful occupations. **SCHOOLS, FARMING, and various TRADE WORKSHOPS.**

SELECTED CASES admitted on reduced inclusive fees. **THOSE UNABLE TO PAY** admitted by votes of Subscribers, with part-payment towards cost.

RECREATIONS: ALL outdoor games, EXCELLENT BAND by Male Staff, for Concerts, Dancing, &c.

Apply: THE MEDICAL SUPERINTENDENT, Earlswood, Redhill, Surrey, or to the Secretary, Mr. HARRY HOWARD, 14-16, Ludgate Hill, E.C.

Telephone: Redhill 344. Telephone: Central 5297.

NEW SAUGHTON HALL

THE ONLY PRIVATE HOSPITAL for the TREATMENT of MENTAL CASES in SCOTLAND

POLTON, MIDLOTHIAN.

NEW SAUGHTON HALL, which takes the place of Saughton Hall, established in 1798, is situated seven miles south of Edinburgh, in the beautiful neighbourhood of Hawthornden and Rosslyn, and is surrounded by picturesque and well-timbered pleasure grounds extending to 125 acres.

Railway Stations—Polton, five minutes; and Loanhead, ten minutes' walk from the Institution—reached in half-an-hour from the Waverley Station, Edinburgh. Telephone—4 Loanhead.

Forms of admission for voluntary or certified cases, full instructions, &c., can be obtained on application to the Resident Medical Superintendent, S. RUTHERFORD MACPHAIL, M.D.Edin. Inclusive terms from £165 to £500 per annum, according o requirements.

NORTHWOODS HOUSE

WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail viâ Bristol, Winterbourne, Patchway, or Yate Stations. Uncertified Boarders received. For further information see Medical Directory, page 2177. Terms moderate.

Dr. J. D. Thomas and Dr. J. R. P. Phillips, O.B.E., Resident Physicians and Licensees.

CROOKSBURY SANATORIUM

Specially built in 1900 for the Treatment of **Pulmonary Tuberculosis**, midst pine trees and heather, in the most beautiful part of Surrey. Large grounds, with fine views Altitude over 400 feet; south aspect. Electric lighting. Modern methods of treatment.

MEDICAL DIRECTOR: **F. R. WALTERS**, M.D., M.R.C.P.Lond., F.R.C.S., formerly Physician to the Mount Vernon Chest Hospital.

For particulars apply to the Secretary, Crooksbury Sanatorium, Farnham, Surrey.

MENDIP HILLS SANATORIUM

FOR THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS

Old-established, beautifully situated, 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Extensive views. Separate chalets, with verandahs; hot-water radiators, and electric light in every room and chalet. Graduated Exercises. Electric treatment (including X-Ray), &c. Individual attention.

Resident Physicians—Dr. C. MUTHU, Dr. T. C. BRENTNALL.

For particulars apply SECRETARY, Hillgrove, Wells, Somerset.

VILLARS MOUNTAIN—CHALET OPEN-AIR SCHOOL.

Principal: **RONALD CAMPBELL MACFIE**, M.A., M.B., C.M., LL.D. (Author of "AIR AND HEALTH," etc.).

SITUATED 4000 feet high in beautiful Alpine Sports resort near Montreux.

PUPILS have the advantage of education and sport (in winter, ski-ing, skating, luging) under medical supervision in sunny and bracing Alpine climate. French and German taught.

DELICATE BOYS (8-18) taken, but tuberculous cases—other than gland—not accepted. Heliotherapy when desirable. Fees inclusive 6 guineas. Special terms for winter VACATION PARTIES.

Apply Secretary, Mountain Chalet School, Villa Marie Louise, Villars-sur-Ollon, Switzerland.

LINFORD SANATORIUM,

RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X Ray Plant. Full Nursing Staff. All forms of treatment available.

Farm of 120 acres, including 40 acres wood. Herd of Tuberculin-tested Guernsey cows kept.

Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch. (Cantab.).
JAMES D. MACFIE, M.B., Ch.B. (Glasgow.) A. G. E. WILCOCK, M.R.C.S., L.R.C.P.

DARTMOOR SANATORIUM

750 feet above sea level.

Within easy reach of the Moor. RADIOGRAPHIC INSTALLATION, CENTRAL HEATING, ELECTRIC LIGHT. Efficient Treatment combined with Individual Comfort and Minimum Restrictions.

Resident Physicians: C. H. BERRY, M.R.C.S., L.R.C.P.; Miss M. V. SAUL, M.R.C.S., L.R.C.P.

Illustrated Prospectus on request, C. H. BERRY, M.R.C.S., Sanatorium, Chagford, Devonshire. Telephone: 11 Chagford.

The work hitherto carried on at

DUFF HOUSE, BANFF, SCOTLAND,

has been transferred to

RUTHIN CASTLE,
NORTH WALES,

which is now opened as a Private Hospital for sufferers from any non-infectious INTERNAL DISEASES who need investigation or treatment.

Special arrangements are made for carrying out the preliminary tests needed for the proper administration of INSULIN in diabetes.

Application should be made to the Secretary.

THE DEESIDE SANATORIA IN SCOTLAND

FOR THE OPEN-AIR TREATMENT OF

PULMONARY TUBERCULOSIS and ALLIED DISEASES

At BANCHORY and MURTLE.

Medical Director - - DAVID LAWSON, M.A., M.D., F.R.S.E.

These Sanatoria are situated amidst **Ideal Surroundings in Middle Deeside**, the reputation of whose **Climate** in the treatment of Lung Diseases is well established.

Both Institutions are well equipped with **Research Laboratory, Throat Room, Dental facilities**, and powerful **X-Ray Plant. Full Day and Night Nursing Staffs** are employed.

Special Treatment by artificial **Pneumothorax** (with X-ray Control), the various **Tuberculins**, and Autogenous **Vaccines**, &c., is available without extra charge.

NORDRACH-ON-DEE

At BANCHORY, near BALMORAL.

Physician - - - - DR. IAN STRUTHERS STEWART.
Assistant Physician - DR. J. C. LORRAINE.

For particulars apply Secretary.

TOR-NA-DEE SANATORIUM

At MURTLE, ABERDEENSHIRE.

Senior Physician - - DR. J. M. JOHNSTON.
Assistant Physicians - DR. R. J. DUTHIE & DR. H. TRAIL.

Inclusive terms 7 guineas a week.

For further particulars apply Secretary.

The Scottish Branch of the British Red Cross Society is prepared to contribute towards payment of the fees of ex-Officers and Nurses recommended by the Society and such Officers and Nurses obtain priority of admission to TOR-NA-DEE.

The Residential Treatment of Alcoholism and Drug Addiction.

RENDLESHAM HALL

(Postal Address) — WOODBRIDGE, SUFFOLK,

RENDLESHAM HALL.

With 45 Bedrooms, and about 450 acres of Gardens and Park, is now open to receive Patients.

All the comfort and home life of a large country house.

A private Nine-hole Golf Course, Tennis and Croquet Lawns, and Bowling Green.

Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Nearest Station:
WICKHAM MARKET.

Telegrams and Telephone:
WICKHAM MARKET 16.

Proprietors—**THE NORWOOD SANATORIUM, LIMITED.**

Also at THE MANSION, BECKENHAM PARK, BECKENHAM.

PENDYFFRYN HALL SANATORIUM (ESTAB. 1900)

ARTIFICIAL PNEUMOTHORAX AND ALL MODERN METHODS OF TREATING TUBERCULOSIS AVAILABLE UNDER IDEAL CONDITIONS.

INSULIN ADMINISTRATION (WITH BLOOD SUGAR CONTROL) AVAILABLE FOR DIABETIC CASES.

Resident Physicians :

BERKELEY ASH, M.R.C.S., L.R.C.P., Late First Assistant to King Edward VII. Sanatorium, MIDHURST ;
C. H. BRODRIBB, M.B., B.S.Lond., M.R.C.S., L.R.C.P. late Physician in Charge King Edward VII. Memorial Hospital, Secunderabad;
P. L. T. BENNETT, M.C., L.R.C.P., T.D.D., late Assistant Resident Medical Officer to BROMPTON HOSPITAL for Diseases of the Chest.

Matron.—Miss L. HANSON, late King Edward VII. Sanatorium, MIDHURST, assisted by a full Day and Night Nursing Staff.

For full particulars apply to S. GUTHRIE, Esq., Assistant Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales.

PRIOR PLACE SANATORIUM

HEATHERSIDE, CAMBERLEY.

RECENTLY OPENED FOR THE TREATMENT OF PULMONARY TUBERCULOSIS.

WELL SITUATED ON HIGH GROUND AND SURROUNDED BY PINES AND HEATHER.

RESIDENT MEDICAL SUPERINTENDENT: DR. H. O. BLANFORD, late Medical Superintendent, King Edward VII. Sanatorium, Midhurst, to whom applications for particulars may be made.

YARROW CONVALESCENT HOME, BROADSTAIRS.

FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

Charge, 10s. per week for each Child.

This fee is subject to addition or deduction according to Parents' means.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14.

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

Particulars can be obtained from the SECRETARY, 116, VICTORIA ST., WESTMINSTER, LONDON, S.W.1.

INEBRIETY.

[Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

BAY MOUNT, PAIGNTON

ALCOHOLISM, DRUG HABIT, NEURASTHENIA.

Ladies and Gentlemen received.

Small, select home, standing in 3½ acres of secluded gardens overlooking Torbay, near Torquay. Billiards, golf, tennis, &c. Every case treated with a view to rapid and permanent cure.

All communications must be addressed to SECRETARY, or STANFORD PARK, M.B., Bay Mount, Paignton.

Tel.: Paignton 210

DROITWICH

For Spa Treatment of
RHEUMATISM, SCIATICA,
RHEUMATOID ARTHRITIS, &c.

Famous Natural Brine Baths. Golf, Music, etc.

Illustrated Booklet, etc., free from Baths Manager :

J. H. HOLLYER, 48, Spa Enquiry Offices, Droitwich (Worcs).

COMPLIMENTARY FACILITIES TO MEDICAL MEN.

SMEDLEY'S HYDRO.

MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.).

Prospectus and full information on application to the Managing Director.

PALACE SANATORIUM,

MONTANA-SUR-SIERRE,

SWITZERLAND.

TUBERCULOSIS CURE STATION

(All the Year). THE FINEST IN EUROPE.

5000 ft. high. Accommodation for 100 patients.

Principal Resident Medical Officer:
BERNARD HUDSON, M.D.Cantab., M.R.C.P.,
Late Physician to the Queen Alexandra Sanatorium, Davos Platz.

FULL PARTICULARS FROM THE SECRETARY, 5, ENDSLEIGH GARDENS, LONDON, N.W.1.

PEEBLES HYDRO.

Beautifully situated 600 feet above [illegible] level. Facing South, completely sheltered from North and East.
[illegible] miles from Edinburgh.

All modern Baths, Douches, Massage and Electrical Treatments. Resident Physician: K. R. COLLIS HALLOWES, B.A., M.B., B.Ch., B.A.O. IDEAL WINTER RESORT. Electric Light, Central Heating, Electric Lift, Three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Croquet Lawn, Golf Course.

Prospectus from Manager.

NEURASTHENIA.

The work hitherto carried on at ELTON has been transferred to the

VALE OF BELVOIR NURSING HOME,

ASTON-ON-TRENT, DERBY.

Private Nursing Home for Cases of Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion 14 miles from Nottingham and 6 miles from Derby, is for both sexes.

In addition to the methods of general medicine associated with occupational treatment, physical exercises, and massage, treatment by Psycho-Therapy, adapted to the type of case, is available for cases requiring it. Electrical Treatment, Radiant Heat, etc., is available.

For further particulars and fees apply to—
Dr. E. M. DOUGLAS-MORRIS, ASTON, DERBY.
(*Telephone: Shardlow* 16.)

Telegraphic Address: "Relief, Old Catton." Telephone: "290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.— **A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders** are also received without certificates.

For full particulars apply to the Misses MCLINTOCK, or to Dr. S. BARTON, 34, Surrey-st., Norwich, Visiting Physician.

PORTSMOUTH BOROUGH MENTAL HOSPITAL.

Accommodation is provided for the reception of PRIVATE PATIENTS of both sexes in three detached Villas, which are healthily and pleasantly situated in extensive grounds, with sea views

Charges from 3 guineas weekly, including all necessaries, except clothing. Apply to the Medical Superintendent.

MAYFIELD, ROTHSAY ROAD, BEDFORD

Telephone: 872.

Private Home for Mild Mental, Paralysis and Chronic cases. Special attention given to Borderland patients. Terms 4 gns. weekly. Apply, Medical Officer or Matron.

LITTLETON HALL, BRENTWOOD, ESSEX

(18 MILES FROM LONDON.)

400 feet above sea.

HOME for few LADIES Mentally Afflicted. Large grounds. Liverpool-st. 26 min. Stations: Brentwood, Shenfield, one mile. Boarders received. Apply Dr. Haynes. Telephone and Telegrams: Haynes Brentwood 45.

BARNWOOD HOUSE

HOSPITAL FOR MENTAL DISEASES,

BARNWOOD, near GLOUCESTER

Telephone; No. 7 Barnwood.

Exclusively for PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES.

This institution is devoted to the Care and Treatment of persons f both sexes at moderate rates of payment.

Voluntary boarders not under certificates are admitted.

Under special circumstances the rates of payment may be educed by the Committee.

The MANOR HOUSE for Ladies only, which is entirely separate rom the Hospital and standing in its own grounds, is utilised xclusively for voluntary patients.

For further information apply to ARTHUR TOWNSEND, M.D., e Medical Superintendent.

MALLING PLACE, KENT

For LADIES and GENTLEMEN of Unsound Mind.

Terms Moderate. Apply to Resident Medical Superintendent. Telegrams: ADAM, WEST MALLING. Telephone: No. 2 MALLING.

Grove House, All Stretton, Church STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of [illegible] limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Bucks Mental Hospital,

Stone, near Aylesbury.

The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at [illegible] minimum weekly charge of 1½ guineas. No vacancies for female cases at present.

Apply to the Medical Superintendent.

City of London Mental Hospital,

Dartford, Kent. Under the Management of a Committee of the Corporation of the City of London.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards. Voluntary Boarders can now be received. Apply to the Medical Superintendent.

Bournemouth.—Doctor has a vacancy for Convalescent or Invalid. Beautiful secluded mansion facing the sea.—Address, No. 662, THE LANCET Office, 423, Strand, W.C. 2.

Neurasthenic or Nerve Cases received by Specialist. Large house and grounds. Bracing climate. Chronic or rest cure cases accepted.—Dr. POPE, Hollanden House, Burlington-road, Ipswich.

Patient or Guest requiring care, rest-cure, supervision, received in Doctor's charming residence. Excellent cuisine and comfort. Doctor's own personal attention given.—Address, No. 703, THE LANCET Office, 423, Strand, W.C. 2.

Nursing Sister would like the care of CHILDREN.—The Retreat, Higher Brimley, Teignmouth, S. Devon.

Chelsea Hospital for Women, Arthur-street, S.W. 3.—There is a vacancy for a PATHOLOGIST (Gynæcological). Candidates must be Graduates in Medicine of a recognised University or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, or Ireland, or Fellows of one of the Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £40 per annum. Applications for the above post must be sent, accompanied by copies of three testimonials, not later than Friday, the 2nd January, 1925, to the Secretary. HERBERT H. JENNINGS.

St. Mary's Hospital, London, W. 2.

OPEN APPOINTMENT.

Applications are invited for the post of MEDICAL SUPERINTENDENT.

The Medical Superintendent is the Senior Resident Medical Officer of the Hospital. His duties are administrative and professional, and include the charge of certain beds.

Candidates must be qualified both in Medicine and Surgery and have held the post of Resident Medical Officer to some general hospital

Tenure of post: the appointment is for one year, the holder being eligible for re-election for a second and third year.

Inclusive salary £400 per annum, with board and residence provided.

The successful candidate will be expected to commence duty as soon as possible in January.

Applications to reach the undersigned not later than Wednesday, the 31st of December, 1924. W. PARKES, Secretary.

County of London.

The London County Council invites applications for appointment as JUNIOR ASSISTANT MEDICAL OFFICER (Men) in the Mental Hospitals Service. Candidates must be not more than thirty-five years of age and must be registered to practise both in Medicine and Surgery in England. Candidates appointed will be pensionable under the Asylums Officers' Superannuation Act, 1909. Preference will be given to candidates who served or offered to serve with H.M. Forces during the late war. Salary £300 a year, rising by annual increments of £25 to £400 a year, without emoluments, also (at present) temporary addition to salary, making the total commencing remuneration about £432 a year. Charges made for board, lodging, &c. (at present £2 9s. weekly) to such officers as are resident. Full particulars and conditions of appointment on form of application (on which alone application can be made) obtainable from the Chief Officer, Mental Hospitals Department, County Hall, Westminster Bridge, S.E. 1. Canvassing disqualifies. Applications must be received by 11 A.M. on Thursday, 1st January, 1925.

JAMES BIRD, Clerk of the London County Council.

The Mount Vernon Hospital for
TUBERCULOSIS AND DISEASES OF THE LUNGS, Northwood, Middlesex.—There is a vacancy for an ASSISTANT RESIDENT MEDICAL OFFICER. Six months' appointment. Salary at the rate of £200 per annum, with board, lodgings, &c,

Applications, with not less than three copies of testimonials, to the undersigned on or before Jan. 10th, 1925.

W. J. MORTON, Secretary.

Offices: 7, Fitzroy-square, W. 1.

London School of Hygiene and
TROPICAL MEDICINE.

(Division of Tropical Medicine and Hygiene.)

Applications are invited for the vacant post of ASSISTANT IN HELMINTHOLOGY. Salary £500, plus superannuation under the Universities Federated Superannuation Scheme. Candidates must possess a Science Degree and a registrable qualification in Medicine or Veterinary Medicine. Applications, stating the candidate's experience in teaching and research, with copies of his scientific contributions and the names and addresses of not more than three persons to whom reference may be made, should be received not later than 1st January, 1925, by the Secretary, London School of Hygiene and Tropical Medicine offices, Malet-street, London, W.C. 1., from whom further particulars may be obtained.

COMMISSIONS

IN THE

Royal Army Medical Corps.

An Examination for not less than Twenty Commissions in the Royal Army Medical Corps will be held on the 28th January, 1925.

Applications to compete should be made to the Under Secretary of State, The War Office, not later than 18th January, 1925. The presence of candidates will be required in London from 26th January.

Intending candidates can obtain a full statement of the duties and emoluments of the service on making a written application to the Under Secretary of State (A.M.D.1.), The War Office, Whitehall, London, S.W. 1.

Queen Mary's Hospital for the
EAST END, Stratford, E. 15.

HONORARY DENTAL SURGEON.

There is a vacancy at this Hospital for an Honorary Dental Surgeon.

Candidates must be Licentiates in Dental Surgery.

The Dental Surgeon should attend at the Hospital any morning, except Tuesday or Saturday, at 9.30 A.M.

The appointment is for a term of five years, subject to re-appointment at the end of that period.

Applications, accompanied by copies of three recent testimonials, must be sent to the undersigned not later than Saturday, the 10th of January, 1925.

RAPHAEL JACKSON (Major) Secretary.

City of London Mental Hospital,
near Dartford, Kent.

SECOND ASSISTANT MEDICAL OFFICER required. Preference will be given to applicant holding a Diploma in Psychological Medicine. Those not holding such a Diploma must agree to obtain the same within a reasonable period. Upon obtaining the same an increase of salary of £50 per annum will be granted.

Salary £350 per annum (or £400 if applicant holds Diploma in Psychological Medicine), rising by annual increments of £25 to £450, with board, rooms, laundry, and attendance.

Deductions according to Superannuation Act, 1909.

Applicants must be Male, single, and fully qualified. A previous Resident appointment in a general Hospital is desirable.

Apply by letter only, with three copies of testimonials, to the Medical Superintendent.

Ashington Hospital, Northumberland.
Applications are invited for the post of HOUSE SURGEON to commence duties the 1st of February. Free board and lodging. A large number of accident and general surgical cases are received, men, women, and children. Applications, stating essential particulars and experience, together with copies of not more than three testimonials, should be sent to the undersigned.

F. GAIRDNER, M.B., M.R.C.S.,
Superintendent Surgeon.

Swansea County Borough.

ASSISTANT MEDICAL OFFICER. — Swansea Borough Council invite applications from duly qualified Women Medical Practitioners for the post of Assistant Medical Officer, to assist with medical services of the Corporation. Special experience of Antenatal and Maternity work are desirable qualifications. Commencing salary £600 per annum. Form of application and list of duties can be obtained from Dr. THOMAS EVANS, Medical Officer of Health, Public Health Offices, Swansea, to be sent in not later than January 5th, 1925.

North Middlesex Hospital,
Edmonton, N. 18.

MALE RESIDENT MEDICAL OFFICER REQUIRED.

A well-qualified Gentleman desirous of good hard work is required at this Hospital with over 1000 sick beds and Outpatient Department. As experience is very extensive, the candidate should have previously held a House appointment, and preference will be given to one with knowledge of Routine of Pathological Laboratory. The appointment is a whole-time one, living in.

Salary, £200 per annum, subject to the terms stated on the application form. Application to be made on forms to be obtained from the Medical Superintendent and Surgical Director.

Leeds University.—The Council will
proceed shortly to the appointment of a DEMONSTRATOR in the Department of Pathology and Bacteriology, at a salary of £300 a year. Full particulars may be obtained from the Registrar, The University, Leeds, who will receive applications up to the 5th January, 1925.

West Bromwich and District Hospital.
(Beds 105.)—Wanted, a RESIDENT ASSISTANT HOUSE SURGEON (Male). He must be doubly qualified and unmarried. Salary £180 per annum, with board, residence, and laundry.

Applications, stating age, and if possessing a knowledge of Ophthalmic Surgery, and accompanied by copies of testimonials, should be sent to Mr. Thos. F. Bache, J.P., Lombard House, West Bromwich, on or before December 18th instant.

By order.

FRANK I. HANCOCK, Secretary and Superintendent.

Royal Hampshire County Hospital,
WINCHESTER.

Applications are invited for the post of HONORARY ASSISTANT SURGEON. Applicants must be Fellows of one of the Royal Colleges of Surgeons of Great Britain or Ireland or Graduates in Surgery of one of the Universities of Great Britain or Ireland, and their names inserted in the Medical Register. Applications, with testimonials not exceeding three in number, must reach the undersigned not later than 12th January, 1925.

By order.

HERBERT MASLEN, Secretary.

Borough of Swindon Education
COMMITTEE.

The Education Committee desire the services of an OCULIST in connection with their School Medical Service, to devote three school sessions fortnightly, for about forty weeks in the School Year, at a fee of two and a half guineas per session. Applications, which must be received by 9th January, 1925, should be sent to the School Medical Officer, Dr. Dunstan Brewer, Public Health Department, 61, Eastcott Hill, Swindon.

December, 1924. W. SEATON, Secretary.

Princess Alice Hospital, Eastbourne.
(80 Beds.)—Applications are invited for the post of Male RESIDENT HOUSE SURGEON. Candidates must be unmarried and fully qualified. Duties to commence about the 16th of January next. The appointment is for six months, and may be extended. Salary at the rate of £175 per annum. If appointment extended, salary will be at the rate of £200 per annum.

Applications, stating age, qualifications, and accompanied by not more than three copies of recent testimonials (typewritten), should be sent to the Secretary not later than the 30th Dec.

Norfolk and Norwich Hospital,
Norwich.—Applications are invited for the following appointments which will be vacant on February 1st :—

HOUSE PHYSICIAN. £150 per annum, with board, residence, and laundry.

HOUSE SURGEON. £150 per annum, with board, residence, and laundry.

Preference will be given in each case to a candidate who has held a previous Hospital appointment.

Candidates (Male), who must possess registered qualifications, should forward applications, stating age, nationality, &c., together with copies of testimonials, to the undersigned, not later than Friday, 9th January, 1925.

19th December, 1924. FRANK INCH, Secretary.

Birmingham and Midland Eye
HOSPITAL.

Applications are invited from duly qualified Gentlemen for the post of RESIDENT SURGICAL OFFICER at the above Hospital. Salary £150 per annum.

The Resident Staff also consists of two House Surgeons and in the event of one of these being promoted, applicants should state whether they will be willing to accept the appointment of House Surgeon at a salary of £110 per annum.

Applications, with testimonials and evidence of Registration, must be sent on or before Thursday, January 8th, 1925, to the undersigned, from whom any further information can be obtained.

C. A. MASON, General Superintendent.

Church-street Birmingham, December 19th, 1924.

The University of Manchester.

The Council are about to appoint a LECTURER IN ANATOMY. Stipend £500 per annum. Last date for applications February 11th, 1925. Further particulars may be obtained from the Internal Registrar.

Bristol Mental Hospital.

The Committee of the Bristol Mental Hospital invite applications for the position of SECOND MEDICAL ASSISTANT at the above Hospital. Candidates must be duly qualified in Medicine and Surgery and must be unmarried. Preference will be given to candidates who have had previous Mental Hospital and Pathological experience. Salary £400, rising by two increments to £450 per annum.

Applications, stating age, &c., with copies only of three testimonials, to be sent to the Medical Superintendent, Bristol Mental Hospital, Fishponds, Bristol, endorsed "Second Medical Assistant," on or before Monday, the 12th January, 1925.

By order.
EDMUND JUDKIN TAYLOR,
Clerk to the Visiting Committee.

The Council House, Bristol, 20th December, 1924.

UNIVERSITY OF SYDNEY.

New South Wales.

PROFESSORSHIP OF OBSTETRICS.

The Senate of the University of Sydney invites applications for the Professorship of Obstetrics in the University, the salary attached to which is £1100 per annum. £150 will be allowed for travelling expenses from the British Isles. The Professor will be expected to enter on his duties as soon as possible after the beginning of March next. A memorandum giving fuller particulars of the appointment may be obtained on request to the AGENT-GENERAL for New South Wales, Australia House, Strand, London, W.C. 2, who will receive applications for the position until Saturday, 24th January, 1925. Applications (for which there is no special form) should be in quintuplicate and, if testimonials are submitted with the application, they should be in quintuplicate also, but original testimonials should not be sent by applicant.

University of Cape Town.

Applications are invited for the post of ASSISTANT to the PROFESSOR OF BACTERIOLOGY.

SALARY	£500 per annum.
ENGAGEMENT . ..	In the first instance for one year, with the prospect of renewal subject to six months' notice on either side. Duties should be assumed on 10th March, 1925.
TRANSPORT	The sum of £40 will be given on account of passage money.
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COMPOSITION.—Ext. Cascaræ, Ext. Rhei, Jalapin, Podophyllin, Cocainæ Hydrochlor., 1-20th gr. in each fluid drachm.

This preparation does not come under the Dangerous Drugs Act.

THIS excellent compound, first introduced as a general **aperient** and **cholagogue**, has now become a popular remedy in that class of cases spoken of as Chronic Biliousness, in Catarrhal Jaundice, and in the Jaundice of simple Hepatic Torpor. **In passive or habitual Congestion of the Liver, so frequently met with, it has been used with marked benefit.**

In the treatment of acute or temporary constipation, frequently met with in the convalescence from acute disease and in pregnancy, or in the constipation due to sedentary habits, to a deficiency of intestinal secretion and of peristalsis, the mixture can be prescribed with wonderful effect.

The Dose is from 10 to 60 minims, according to the age and condition of the patient. One drachm is a direct aperient and is not accompanied by griping or tenesmus.

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Price in England, 12/6 per lb.

Please write: "Mist. Hepatica Conc. (HEWLETT'S)" to ensure obtaining this Preparation.

This preparation is also supplied "sine Cocaina," the dose and price remaining the same.

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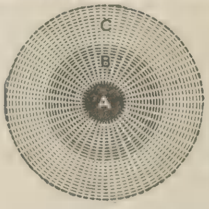

Diagram represents inflamed area. In zone "C" blood is flowing freely through underlying vessels. This forms a current away from the Antiphlogistine, whose liquid contents, therefore, follow the line of least resistance and enter the circulation through the physical process of endosmosis. In zone "A" there is stasis, no current tending to overcome Antiphlogistine's hygroscopic property. The line of least resistance for the liquid exudate is therefore, in the direction of the Antiphlogistine. In obedience to the same law exosmosis is going [illegible] in this zone, and the excess of moisture is thus accounted for.

Antiphlogistine poultice after application. Center moist. Periphery virtually dry.

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